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ABSTRACT

New approaches to allocating state resources to colleges are discussed. Budgeting and resource allocation principles are considered that: (1) reflect the unique context of higher education; (2) are consistent with sound budgeting and management principles; and (3) represent institutional mechanisms applied at the state level rather than approaches developed expressly to reflect state priorities. To form the basis for a set of first principles for state-level resource allocation, the following concepts are addressed: the link between budgeting, planning, and accountability; governance relationships; production functions in higher education; and key structural components of the budget. The following customary approaches to resource allocation are evaluated in light of these principles and guidelines: incremental budgeting, formula budgeting, base-plus-increment approaches, and categorical or competitive approaches. The changing environment affecting resource allocation and actual and potential responses to the problems involved are also considered, including buffering and decoupling, marginal costing, and using fixed and variable costs. Finally, key recommendations are summarized, and areas where reform of resource allocation may further the aims of schools and state government are identified. (SW)

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Higher-Education Budgeting At the State Level: Concepts and Principles

Dennis P. Jones

1984

National Center for Higher Education Management Systems
P.O. Drawer P Boulder, Colorado 80302
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1

The Future of State Funding

James Thurber was fond of saying, "It is better to know some of the questions than all of the answers." Adopting his advice, this volume steps back from annual attempts to make the numbers come out right and considers instead basic questions about state funding of higher education.

Budget cycles turn as inevitably as the seasons. Relentless and swift, these revolutions on the fiscal treadmill complicate the already difficult task of finding suitable responses to the needs of higher education. More importantly, changing circumstances have rendered many customary approaches to resource allocations inappropriate. The needs of state colleges and universities are clearly different today than they were in the 1950s and 1960s. Moreover, the state's own educational requirements have changed as a new generation of students prepares itself for working and living in an information society. If new answers are needed, we must first remind ourselves of the questions. Then we must frame our responses within the context of basic concepts and principles that can assist us in forming educational and fiscal policies appropriate to the 1980s.

This book represents an attempt to get back to the basics on the topic of state financing in higher education. To do so, we must clear much of the conceptual and rhetorical underbrush that has accumulated over the years. We must review the wealth of experience that states have in financing higher education and determine how we can better tap and utilize it. Some of this experience consists of the personal knowledge accumulated by individuals responsible for recommending and implementing new mechanisms for resource allocation. Much of the literature dealing with state financing of higher education consists of the documented experience of others. The most frequently cited writings are all descriptive in nature (such as Miller 1964, Gross 1973, and Glenny 1976). Those writings that do not reflect personal experience or provide descriptive accounts are inevitably hortatory in nature. They extol the virtues of one particular method or urge the adoption of a particular point of view. What is missing is a fundamental, conceptual basis for organizing this experience. We must be able to juxtapose and compare approaches. It is crucial that we identify which approaches are similar at heart and which are based on dramatically different sets of assumptions. Likewise, we must recognize the critical features of various approaches and understand the context in which they are being employed.

Three perspectives inform our consideration of state-level funding of postsecondary education. The first concerns the diversity and complexity of higher education itself and of current mechanisms for allocating resources within the enterprise. We must recognize that we are speaking of 3,000 unique institutions. While colleges and universities have much in common, they are clearly different from each other in important ways. The resource-allocation mechanisms through which they acquire their funds are similarly diverse. Examined closely, the funding process consists of myriad individual decisions, arrayed in complex ways by a large and continually changing cast of characters. Budgetary decisions are never exactly replicated from year to year, much less from state to state. To some degree, this diversity is both warranted and healthy. Not only must resource-allocation procedures reflect the unique context of higher education, they must also take into account specific institutional and state concerns that change with time. Nevertheless, if we wish to discern basic concepts and principles that inform the funding process, we must look beyond this complexity. In these pages we address issues common to all states and public institutions, without overlooking necessary distinctions or forming unduly broad generalizations.

The second perspective that informs this book concerns the importance of recognizing sound budgeting principles. These principles argue that the budget process is more than a means of allocating resources; it is also an extension of the planning process and a framer of accountability. Without adequate planning, resource allocation becomes nonpurposive at best. Likewise, accountability mechanisms normally considered to be an integral part of resource allocation are either missing from, inconsistent with, or counterproductive to many state funding schemes. Our discussion seeks to generate some "first principles" for use by those developing and implementing new or modified procedures for resource allocation that reflect sound budgeting procedures in other contexts.

This discussion of state funding of higher education differs from others in a third respect. We view the process from the state perspective. Approaches to resource allocation have most often been developed from an institutional perspective. In other words, they represent institutional mechanisms applied at the state level rather than approaches developed expressly to reflect state priorities. It is little wonder then, that institutional and state-level administrators seem to clash incessantly over the operational details of running colleges and universities. The mechanisms put in place to guide the state-level resource-allocation process invite state-level decisionmakers to treat, as policy variables, items that would otherwise be considered well within the managerial prerogatives of institutional administrators. This book adopts the state perspective for several reasons. The view of state government is crucial because it is the locus of the decisionmaking with which we are concerned. Whether by design or by default, resource-allocation mechanisms reflect state priorities and educational policies. We take this perspective not to the exclusion of institutional interests, but as a necessary and important corrective to our customary understanding of resource allocation.

This book speaks to the needs of public higher education in the 1980s. New circumstances, however, should not necessarily force us to espouse or embrace radically different approaches. Rather, we must reexamine what has come to be viewed as standard practice and modify these approaches in subtle but important ways. What is called for, and what this volume hopes to provide, is a set of concepts and principles about state-level budgeting and resource allocation that:

1. Reflects the state perspective (but not to the exclusion of institutional interests)
2. Proceeds from and is consistent with sound principles of budgeting and management
3. Deals with the application of these basic principles within the unique context of higher education

Working from these three perspectives, we can develop a coherent and conceptually sound picture of two relatively independent entities—postsecondary institutions and state government—bound together by a series of relationships that extend beyond funding to include governance, service, and accountability.

Public postsecondary education is very much a creature of state government. Just as national defense is recognized as a function of the federal government, and elementary and secondary education are generally considered community concerns, the governance and finance of public higher education reside with the state. The relationship is not exclusive. The federal government and, in some states, local governments do contribute to the ongoing operation of public postsecondary education. Students, too, contribute a collectively significant share. Nevertheless, the responsibilities of guardianship lie with state government.

Two facts reveal the strength and importance of this bond. First, state government is by far the single largest source of support for public colleges and universities. States contribute about 60 percent of the revenues that support public higher education's instructional and general expenditures. Remove the revenues constrained to support research, and their share escalates to almost 70 percent. Second, the share of revenues that higher education receives from general state funds typically ranks second only to those allocated to elementary and secondary education. Clearly, state government has an important stake in its educational institutions; these institutions, in turn, look to the state for their support. Their ties are of mutual interest and benefit.

The basis of this relationship—financial support—makes for an association not only close and strong, but often frustrating and sometimes contentious. Because higher education receives a lion's share of the state budget, its constant requests for more resources often ring more hollow and strident than true. On the other hand, the state is the primary guardian of its colleges and universities. Advocates of higher education must of necessity look to the state not only for subsistence but for a reasonable quality of life. Inevitably, squabbles over levels of support and organizational lifestyles do occur. Such eruptions are seldom in the best interests of either party. The esteem and credibility of both are too easily diminished when inherent conflicts aren't managed and contained. Like nuclear fission, reactions can be a force for good if they are properly channeled; unconstrained, these reactions can become destructive.

Recognizing, explicitly or implicitly, the importance of keeping their give and take within bounds, both parties have devised ways to smooth the allocation process. The mating dance, in short, has been ritualized. In some states, approaches have become standard operating procedures without a clear and explicit agreement; the system has assumed its present shape by precedent alone. Precedent, for example, can lead to the unquestioned assumption that last year's allocation becomes the base from which to calculate this year's increment. Mechanisms for special requests do exist in nearly all cases, but the bulk of the allocation is determined through procedures with which participants have grown comfortable over time. In other states, these understandings have become codified in the form of budget formulas or other structured guidelines. In these instances, the key factors that enter into budget calculations are reduced to explicit formulas through a negotiation process.

Over the years, state government and public postsecondary institutions have achieved reasonable stability in their relationships. All parties involved have tacitly recognized and accepted the process by which funds are requested and allocated. Consensus has also existed regarding which factors would be considered when adjusting allocations from one year to the next. This stability, however, is crumbling. Customary practices are falling victim to changing times and new priorities. In some states these changes are gradual, in others, precipitous. The immediate cause is economic. State revenues are not expanding at a rate commensurate with the needs of higher education. These revenues are limited either by a sluggish economy or by fundamental social shifts that have resulted in either revenue reductions or caps on the rate of expenditure growth within the state. Examples include California's famous Proposition 13 and its variants in other states. Although now less rampant, inflation has also wreaked havoc. It has often effectively transformed whatever increases have been granted into a net loss.

Economic conditions have also forced various state priorities into sharper focus and, at times, into direct conflict. Often mandated by a legislative statute, state commitments to elementary and secondary education, welfare, and other programs have been maintained at the expense of higher education. Not only is the fiscal pie getting smaller in real terms, the sizes of the pieces are changing. At best, higher education's portion is staying constant. In many states, however, its share is clearly decreasing (McCoy and Halstead 1984). This has prompted many state and institutional administrators to trade in their pie cutter for the fiscal hatchet. A few energy-rich states have been spared these strictures. Many states, however, are being forced to change the ground rules that govern the process by which state funds are allocated to postsecondary institutions.

The changes being made or proposed take many forms. This reflects different state practices, unique conditions in their external environment, and the political and economic constraints that dictate what change is possible. When difficulties are not acute, states favor modifications to their current approach. Their first inclination is to give the old machine a tune-up and hope it will carry them through one more budgetary season. Some states will fund their postsecondary institutions at a percentage of the formula or will allocate funds to yield only a constant share of the fiscal pie. Those states facing relatively small revenue limitations can afford to tinker with the existing resource-allocation machinery and get it to work under somewhat altered conditions.

Some states, however, are being forced—or are willingly choosing—to consider fundamental and radical changes in their funding procedures. Moreover, some that have made a series of incremental changes in their approaches now find themselves with badly flawed or unworkable arrangements. Funding at a "percentage of formula" can be a reasonable short-term solution to a fiscal problem. But if the solution is repeated over a series of years so that institutions are funded at 60 or 70 percent of the formula, then we must question the continued desirability or even viability of this approach. Continued application of band-aids will not result in a cast, the kind of solid support needed to remedy today's problems. A few states are being forced to make more radical changes because of precipitous and potentially long-term declines in their economic fortunes. Even if their economies rebound fully, pent-up demand for state resources will create an altered funding environment that can't help but affect the process for many years to come.

Finally, many states are rethinking, in whole or in part, their approach to resource allocation. They are not prompted by economic necessity alone, but by the recognition that their funding mechanisms are no longer synchronized with state priorities. Be they formula or incremental approaches, funding mechanisms are devices for bringing some measure of certainty and stability to resource allocation. They are not geared to respond to rapid change or to reallocate funds swiftly among shifting state priorities. Change, however, has been the hallmark of the last decade. Many of the resource-allocation mechanisms now in place were developed at a time when the baby-boom cohort was reaching college age. At that time, the primary state objective was accommodating the horde of new students. Clearly, conditions and objectives have changed. Enrollments are now increasing slowly, if at all. Today, states are more concerned with maintaining the quality of their institutions and promoting the economic development of their region than with expanding their capacity to serve more students.

The above reasons indicate why approaches to resource allocations are in a state of flux. Administrators at both the institutional and state levels are exhibiting considerable interest in new approaches to their budgeting problems. Ideally, these approaches will accommodate their changed circumstances but will not require them to abandon their principles or priorities. Although the need to change funding approaches is widely accepted, little guidance exists for safely navigating these uncharted waters. As a consequence, administrators recommending changes can be expected to rely on a customary strategy: borrow the basic solution from someone else and accommodate local, idiosyncratic conditions by modifying it over time. This was the method used by many states in the 1950s and 1960s when incorporating funding formulas into their resource-allocation process. Note, for example, the number of southeastern states that borrowed directly or indirectly from the Texas formula and then modified that formula to suit their particular needs.

This "borrow and adapt" strategy has, however, several drawbacks. First, it requires some states to innovate, to take that initial, risky step. After all, there has to be a bandwagon before anybody can clamber aboard. Several innovations currently meet this need. For example, Indiana has adopted a marginal-cost approach and Wisconsin a fixed- and variable-cost approach. Tennessee has initiated a performance-funding program for promoting outcomes considered important from the state perspective. Colorado's "Memorandum of Understanding" redefines in important ways the relationship between state government and state-supported colleges and universities. These examples illustrate that innovative responses are emerging that address changing economic and educational conditions. It remains to be seen, however, which if any of these initiatives proves itself worthy of widespread emulation.

The second drawback to the "borrow and adapt" strategy derives from applying someone else's solution to your own problems. A budget is a means for implementing a policy. History suggests, however, that it is all too easy to become preoccupied with the means and lose sight of the policies and priorities that lie at their heart. Before a state should adopt another's procedures, it is essential that it understand the key policy implications of that approach. Surgeons, for example, have learned that when transplanting an organ from a donor to a recipient, a long list of special conditions must prevail. Likewise, administrators must understand the idiosyncratic conditions that prevail before resource-allocation approaches can be successfully transplanted from one state to another. Without such an understanding, the transplant may be rejected, to the discomfort if not the peril of the borrowing state. The potential for rejection is exacerbated when we ignore whatever crude understandings we do have in the rush to change procedures. Progress by trial and error can easily turn into no progress at all.

The third limitation of this strategy lies in the fact that while it is easy to borrow, it is considerably more difficult to adapt. Whatever the current budgetary practice, one can be sure that it evolved to its present state over a period of time. One can also be sure that this evolution did not occur flawlessly. Few participants familiar with the resource-allocation process are without tales of a procedure or a legislative provision that did not become a mild if not unmitigated disaster. Borrowing someone else's solution increases the need for field modifications and, consequently, increases the probability that significant problems will emerge.

Mention of these drawbacks is not intended to argue against change; change is not only inevitable, but necessary. Rather, it is intended to argue for informed and considered change. If we are to develop new approaches to resource allocation, we must first ensure that they are grounded in appropriate concepts and assumptions and reflect sound budgeting principles. In short, this book argues for a return to basics. The next chapter deals with several key concepts that can form the basis for devising a set of first principles for state-level resource allocation. Concepts given close attention in chapter 2 include the link between budgeting, planning, and accountability; governance relationships; production functions in higher education; and key structural components of the budget. Chapter 3 deals with customary approaches to resource allocation, evaluating them in light of the principles and guidelines presented in chapter 2.

Chapter 4 describes the changing environment that is affecting resource allocation and, in turn, discusses actual and potential responses to these problems. Drawing on the concepts developed in chapter 2, the fourth chapter assesses the strengths and weaknesses of current efforts to bring resource allocation in line with today's economic and educational realities. No attempt is made, however, to inventory all current practices or to report on the latest happenings in higher-education budgeting at the state level. Chapter 5 summarizes key recommendations and identifies those areas where reform of resource allocation may further the aims of both educational institutions and state government.

With the exception of the final chapter, an effort has been made to avoid prescription and preachment. The intent of this book is to logically develop a conceptual scheme within which funding mechanisms can be understood and evaluated. Above all, it is hoped that the concepts presented will help administrators in state government, legislative staff, and executives at colleges and universities to develop arrangements for resource allocation, planning, and accountability that are appropriate to the 1980s. If these arrangements are to be successful, they must simultaneously serve the priority needs of the state, recognize key institutional objectives, and accommodate the economic realities of our time.

2

The Budget in Concept and Context

Definition and Scope

For most of us, budgeting is what we should have done before we found our checking account overdrawn. State-level financing of higher education also tends to reflect this preoccupation with the bottom line. Our basic assumptions about what the budget process is and what it can accomplish are formed in the caldron of immediate financial exigency. This can result in a myopic view of financing that reduces the cultivation of strategic educational resources to transactions on an accountant's ledger.

Most definitions of budgeting in higher education are not wrong. However, they do exhibit a propensity for turning shortsightedness into a practical and procedural virtue. True, the budget "is an instrument that enables the allocation of resources from one organizational unit to another, whether it be from a department to a faculty member, from a college to a department, from a university to a college, or from a funder to the university" (Caruthers and Orwig 1979, p. 1). In the context of state-level financing of higher education, the budgeting process parcels out available state resources to those entities charged with carrying out state functions. Far too often we limit our view of budgeting to this narrow definition. As a consequence, budgeting becomes a merely financial exercise that starts and stops with the bottom line of the appropriation; its point is reduced to divvying up the pie.

Unfavorable economic conditions only reinforce this perception. State legislators become preoccupied with squeezing more revenues out of an already burdened system and cutting allocations in discretionary areas of the budget. They wish to make ends meet, as indeed they must according to nearly all state constitutions. When tides of red ink rise, legislators and state administrators can easily lose sight of other functions of the budget. These functions are not simply supplemental or auxiliary. Rather, they invest the budgeting process with meaning and purpose. That these functions are often less visible than the bottom line does not negate their presence or importance.

If we take a step back from the numbers, we come to view the budget not so much as a document but as a process. For example, Peter A. Pyher (1973) considers it as part of an integrated system that includes planning as well as budgeting. While planning identifies desired outputs, budgeting identifies required inputs. Reginald L. Jones and H. George Trentin succinctly characterized the key features of the system:

> A budget can be regarded as primarily a plan or goal or objective, and we know of no better definition of budgeting than to say it is primarily a *planning* and *control* system. Each word in that definition is important for a full understanding of budgeting's proper role. The planning and control aspects relate to the fundamentals of the management process. [1966, P. 14]

Even this somewhat technical definition does not embrace the full substance of budgeting or reflect its broad impact. As Aaron Wildavsky correctly points out, budgeting cannot be disassociated from its participants:

> Budgeting deals with the purposes of men. How can they be moved to cooperate? How can their conflicts be resolved? . . . Serving diverse purposes, a budget can be many things: a political act, a plan of work, a prediction, a source of enlightenment, a means of obfuscation, a

> mechanism of control, an escape from restrictions, a means to action, a break on progress, even a prayer that the powers that be will deal gently with the best aspirations of fallible men. [1974, P. xxiii]

This book will not attempt to unravel some of the more metaphysical implications suggested by Wildavsky. However, several functions of the budget suggested in the above quotes must be kept clearly in mind when we discuss approaches to resource allocation.

Linking Intentions and Actions

A budget's primary function is to span the distance between intention and action. It is the device by which a state carries out its.plans and by which it signals its priorities. We should recall that states do support higher-education systems for reasons other than habit. Some motives are highly amorphous (an educated citizenry will enhance the public well being), while others are very specific (state economic growth demands the availability of continuing-education programs for engineers employed by area industries). More often than not, these priorities and purposes remain implicit at best. They are neither written down nor agreed to by the principal parties. Frequently we can only infer the interests and motives that the budget process harbors. Today's hot issue may receive attention, but rarely is it incorporated into a longer list of purposes that may be equally important, if less flashy.

These priorities change over time, and legitimately so. Indeed, they often change faster than the budgeting mechanisms put in place to finance their achievement. As a consequence, operational priorities are largely determined during the budget process. The budget can become, in fact, an ad hoc surrogate for careful planning. Because the process of allocating resources recurs every year (every two years in a few states) and because it has a direct and dramatic impact on institutional operations, administrators are understandably responsive to the signals that emanate from that process. Indeed, the budget is the single mechanism through which states can reward and grant favor in tangible ways to state organizations and their employees. Other control devices, such as laws and regulations, constrain or punish; they are not designed to provide incentives. The power of the budgeting process to capture the attention of institutional administrators is further heightened in those states where government, through funding or statutory controls, is clearly the dominant external constituent for the institution.

Because the budget and the process by which it is determined exert considerable influence, state purposes reflected in them are also given tacit or explicit priority. This point receives far too little attention. When all eyes concentrate on the bottom line, it is easy to ignore the incentives and signals built into the process by which that bottom line is reached. Cynics may not be alone in arguing that no state priorities are reflected in the budget, save perhaps operating efficiency or the limitation of expenditures. However, be it by design or accident, consciously or unconsciously, values and priorities *are* inherent in the budget and the methods used to calculate it. These priorities may not be the ones that state officials would choose were their decision explicit and conscious, but that does not negate their presence. How many state legislators, for example, would argue that their priorities are to diminish educational quality or boundlessly expand access to higher education? And yet, incentives for exactly these purposes are incorporated into most funding formulas. This is not to argue that formulas should not be used or that formulas as we have come to know them are wrong. Rather, it is to call attention to the fact that procedures for calculating budgets are not value free. That these values are implicit rather than explicit or that they weren't considered when the calculation procedures were devised makes them neither neutral nor inconsequential. Once put in place, these procedures will be used and interpreted in such ways that allow institutions to maximize their revenues. This being the case, it behooves the state to consciously choose allocation mechanisms that reinforce institutional behaviors considered most desirable.

Being a bridge between intentions and actions, the budget process can collapse a distinction that is vital to maintain, that between procedure and policy. Because state priorities are rarely made explicit, the usefulness of the budget as a tool for state policy is severely limited. In the absence of policy objectives, budgeting procedures take the upper hand. This results in entrenched bureaucratic structures uninformed by any clear strategy. If budgeting is to promote, not hinder, educational policy, administrators at both the institutional and state levels must consciously review not merely the means for financial support but its ends.

Planning

Planning, the second key function of the budget process, is the way we can consciously choose desirable ends. It is an exercise, however, that most states readily confess that they do not undertake. Some states still develop and publish five-year plans for their colleges and universities. These plans, however, almost inevitably represent a summation of institutional plans, not state objectives. Moreover, they offer less plan than prediction. They calculate future enrollments and the resources required to serve them, but fastidiously avoid any consideration of educational policy. There is little evidence of planning being used at the state level to propose and then achieve a *desirable* future for higher education. At best, planning has been an effort to document an *expected* future.

Although considered lamentable by many, this lack of planning is in some respects understandable. State government is not a monolithic entity. By design, policies are forged in a political crucible. This makes any agreement on desirable futures very hard to achieve. State officials, legislators, and college administrators must confront legitimately different and strongly held views concerning "what ought to be" when trying to envision the future of public postsecondary education. Since confrontation is painful, even politically disadvantageous, it is often studiously avoided. This represents less a tendency toward open compromise than a tendency toward obfuscation and generality. Instead of achieving resolution, those involved in the planning process seek agreeable phraseology. Golden prose is written about the future of higher education. But upon close inspection, this prose provides no guidance whatsoever to those who administer institutions and are held responsible for achieving these generally unspecified ends.

This situation leaves institutional managers free to make creative use of the ambiguity that surrounds them. There are certainly positive aspects to this condition, particularly from an institutional perspective. Likewise, there are pitfalls. Miscommunication or even misunderstanding of the expectations and priorities held by state-level decisionmakers can result in their goals not being met. Institutional administrators then become susceptible to charges that their school is not responsive to its major constituent and funder. In the absence of clear and articulate planning, evaluation of an institution's performance becomes difficult. In short, while achieving complete agreement about state purposes may be politically impossible, some specification is an operational necessity.

Accountability

The need to determine whether performance is in accordance with expectations introduces a third key function. Budgets provide a framework for accountability. Indeed, we can think of accountability as being the post facto mirror image of planning. The utility of the budget as a device for accountability therefore depends heavily on the extent to which it reflects state priorities and ties this funding to performance. When the expectations of funders are clearly stated, there exists a direct relationship between the budget and accountability. Performance must be demonstrated as a condition of completing the "contract" and becoming eligible for final payment. The tie is also direct in some financial arrangements based on formula budgeting, in particular those instances where accountability data are incorporated as independent variables in the equation. For example, when the state places high priority on educating and training students for a particular occupation, it can provide funding on the basis of capitation grants (a certain number of dollars being awarded for every degree granted in a specific program area). In such cases, the accountability or performance data—numbers of degrees granted—must be submitted before the next allocation can be calculated.

Such a clear relationship between planning and accountability is the exception, not the rule. In the absence of direct correspondence, the common tendency is to frame accountability issues in purely financial terms. Institutions are held accountable for spending funds in accordance with the ways those funds are generated. This turns the allocation algorithm into a spending plan; procedure becomes a surrogate for policy. Funding algorithms were not originally devised to serve this function. When by default they do serve as a spending plan, they only cloud, not clarify, state objectives in higher education. An alternative is to build into the budget process additional requirements for reporting and evaluating performance. The aim of such requirements is, of course, to better inform decisions concerning resource allocation. However, they proceed on the assumption that state purposes and priorities can be stated clearly enough to give guidance to those engaged in reporting and monitoring accountability.

Accountability loses much of its meaning when state priorities remain ambiguous, and desirable future conditions unspecified. When little or no effort is made to understand state purposes and intentions regarding higher education, administrators at all levels of the state system focus on means-based accountability rather than on ends-based standards. Questions regarding accountability then typically take a different form: "Did you utilize your resources as expected?" rather than "Did you accomplish what we expected?" Narrow concerns for efficiency drive out expectations of effectiveness; doing things right becomes more important than doing the right things. With this emphasis on means rather than ends, the crucial policy questions that lie at the heart of state-level resource allocation are answered by indirection and inadvertence, if indeed they are answered at all.

Current Practice

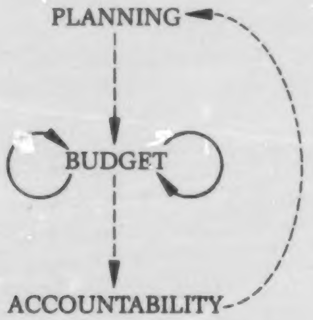
The functions of planning and accountability that should accompany, indeed inform, the budget process are largely absent from current state practices of resource allocation. This collapses the bridge between intentions and actions. In turn, the budget process becomes but a bureaucratic thicket uninformed by foresight or retrospective analysis. As suggested in figure 1, when planning and accountability are denied their proper roles, the entire process of resource allocation is short-circuited. The budget then becomes a closed but infinite loop. What are sometimes mistaken for planning and accountability are actually mirror images of the budget itself. The process can sometimes become nothing more than a self-referential numbers game that compounds past errors and frustrates any change or improvement.

The relationship between one's approach to resource allocation and the ends it achieves does exist whether or not the link is explicitly recognized. Clearly, there are two choices. One can start with priorities and objectives in mind and then fashion, in turn, a resource-allocation process that will provide incentives for achieving those purposes. The uninviting alternative is to start with or inherit a resource-allocation scheme and accept, often blindly, the consequences of the incentives and values that inevitably lurk within that system.

If states are to mend their ways and incorporate purposes and priorities into the budgeting process, they must avoid both sins of commission and omission. On the one hand, mechanisms for calculating the budget are often built in such a way that they create incentives for low priority or even unwanted outcomes. On the other hand, the power of these mechanisms to influence institutional behavior in desirable directions is seldom exploited to anywhere near its full potential. Rarely is explicit use made of the budget and its calculation mechanisms as an incentive and vehicle for effective educational policy.

FIGURE 1

Short-Circuiting the Budget Process



State Objectives

One of the reasons why state purposes of higher education are seldom made explicit is a historic failure to look beyond the institutional level. Most state systems were born as individual public institutions multiplied. This required a level of management oversight extending beyond any one campus. Yet even today, long after state systems have been firmly established and coordinating boards put in place, we seldom encounter state-level perspectives on postsecondary education that differ from summed institutional views. All too rarely are institutions of higher education thought of as providing a means to state ends. Indeed, states themselves seldom consider the set of public goals that might be pursued through investment in their colleges and universities.

A menu of possible state objectives for higher education is presented in table 1. Certainly no state will be in a position to pursue all of these purposes simultaneously. All states will pick and choose from this list, or expand it to reflect their particular circumstances and needs. Inevitably, they will choose differently. No pretense is made that table 1 represents an exhaustive listing of potentially desirable outcomes from the state perspective. While intended as illustrative, the listing has been developed from a conceptually sound description of educational outcomes developed and employed by NCHEMS (Ewell, 1984). The table is presented at this juncture because it will serve as a useful point of reference in subsequent portions of this book.

TABLE 1

A Menu of Potential State Objectives Regarding Higher Education

A. Provision of Educational Opportunity

1. Access/Participation.
   - Reactive—Those that want access are accommodated.
   - Proactive—Students with particular characteristics (ability, socioeconomic, demographic) are encouraged to further their education in the state's public colleges and universities.
2. Choice—Students with particular characteristics are distributed within the system of institutions in desirable ways.

B. Achievement of Particular Student Outcomes

1. Acquisition of knowledge and skills, both general and specific (value added).
2. Certification.
   - General—A desirable proportion of the participants are retained in the system and become degree winners.
   - Specific—Students are graduated with degrees in particular fields.
3. Licensure—Individuals are being licensed in particular professions at a desirable rate.
4. Employment—Graduates are being employed in desirable industries or occupations or in priority geographic areas (such as rural areas or inner cities).

C. Configuration and Quality of Programs and Institutional Resources

1. Existence of particular kinds of institutions in geographically desirable locations. Is the basic institutional structure

TABLE 1, *continued*

of the state's system of higher education appropriate? Should all institutions be maintained? Should missions be changed?

2. Conformance to mission—Do programs fit intended institutional mission?
3. Student quality/institutional selectivity—Are desirable admissions standards being maintained?
4. Institutional quality—Is the effectiveness of the institution being maintained or improved?
5. Program quality—Are desirable standards and curricula being maintained or developed in various programs and disciplines?
6. Resource quality.
   - Faculty
   - Facilities
   - Library
   - Equipment
7. Institutional viability (a composite). Do institutions have the financial resources to retain a critical mass of quality students, programs, faculty, and facilities?

D. Contributions to Specific Constituents

1. Employers—The provision of trained/retrained manpower, consulting, and other services.
2. Disciplines—Research contributions to specific or a broad range of disciplines.
3. State.
   - Service to state agencies
   - Economic development
   - Manpower to meet high priority needs (health professions, teachers, high-tech industry)
4. Special subpopulations within the state.
   - Indigent
   - Rural residents
   - Inner city residents
   - Agriculture or other specific industries

E. Efficiency Aims—to accomplish all of the above with the least draw on the state treasury

When any state becomes preoccupied with balancing its educational checkbook, it loses sight of three crucial points: why it is buying, how it is buying, and what it is buying. In other words, it loses perspective on planning, budgetary mechanisms, and accountability. An awareness of the larger scope and purpose of state-level financing of higher education is necessary if we are to avoid becoming prisoners of the very budgetary mechanisms we have created.

The Organizational Context

Public institutions of higher education are heavily dependent upon and influenced by state government. The few exceptions are a handful of federally funded institutions and those community colleges that are locally financed and controlled. State colleges and universities are established by statute (in some cases, constitutionally) and are therefore creatures of the state. Because they are heavily subsidized by public funds, they are susceptible to direct intervention by both legislative and executive branches of state government. Nevertheless, these institutions are unlike any other administrative or operating arm of the state. They are not state agencies in the same sense as the Department of Corrections or the Division of Human Services. Public postsecondary institutions are invariably established as separately organized corporate entities with their own governance and policymaking bodies. They therefore have a special relationship with state government and enjoy a certain degree of independence.

This governance arrangement alone suffices to distinguish higher education from most functions of state government. Other organizational characteristics of higher education further differentiate colleges and universities from state agencies. These characteristics have a direct bearing on the form and effectiveness of mechanisms for resource allocation and accountability. We will be better able to appreciate the larger context in which state-level financing operates by considering the constituents and funders of state institutions, the governance relationships between institutions and the state, and educational production functions (the manner in which institutions achieve educational outcomes).

Constituents and Funders

Postsecondary institutions are by design pluralistic bodies. They must simultaneously serve the needs and purposes of various constituents. At an absolute minimum, state-supported colleges and universities have two clearly defined audiences: the students enrolled in the institution and the collective needs of state citizens. Most institutions, however, have many more constituent groups from which they receive some measure of support, to which they provide some kind of services, or by which they are regulated in one way or another.

These different constituents contribute resources in a variety of forms, such as money, time, or influence. In turn, they all hold some expectations regarding the consequences of their involvement. Federal agencies, for example, provide institutions with funds for research, library books, scientific equipment, institutional development, and many other purposes. In turn, they extract adherence to a wide variety of rules and regulations, some tied to the funding, many not. They may also specify performance of certain program activities as a quid pro quo.

Business and industry have their own agenda for higher education. They seek as their employees college graduates with training in selected fields, promote the provision of instructional programs that serve the continuing-education needs of these employees, and rely on universities for breakthroughs that fuel technological development. Whether acting as individuals or as foundations, philanthropists also provide funds to institutions. Although they generally have the shortest agenda of any funder, even they have some expectations regarding how the institutions will behave in response to their generosity. Faculty and other employees also have expectations, particularly in regard to the nature of the organizational environment that is so important to their job satisfaction and productivity.

Some of these constituents view their contributions as payment for services rendered. Students are an obvious example, but government and industry can be similarly characterized, such as when they purchase research or other services. Other constituents view their contributions purely as investments in the future of the institution. Donations to the endowment fund, for example, are clearly made with an eye to the long-term viability and capacity of the institution.

State government is unique among these various constituents, and likewise its agenda is very different from other individuals and groups. With the exception of a few constitutionally created universities, state government has the statutory responsibility and authority to create, reorganize, and divest itself of public postsecondary institutions and their assets. While boards of trustees or regents are established to carry out the governance and policy functions of colleges and universities, state government holds ultimate authority. This authority can be wielded directly through statutes or indirectly through the budget.

As a function of this responsibility, state government must necessarily view the institution, or its system of institutions, in investment terms. Clearly, state government wishes to maintain or create a desirable mix and location of postsecondary institutions and programs. It also desires quality faculty, appropriate facilities, up-to-date laboratory equipment, and library and other information resources that are at least adequate to the needs of each institution. Of course, states do expect more than "good" institutions to result from their appropriations. They also expect trained manpower, solutions to problems facing the state, and certain goods and services that may also be priorities of other constituent groups. These expectations, however, do not lessen what is the state's primary obligation: concern for the condition of its educational assets, whether in the form of programs, faculty, or buildings.

Two salient points emerge from this brief discussion about the pluralistic nature of higher education. Both are obvious but are so important as to warrant repetition and further emphasis. First, while state government is the major constituent of public higher education, it is by no means the only constituent. College administrators are faced with the necessity of simultaneously responding to several groups, each of which has provided financial or other resources to the institution and each of which has a somewhat different set of expectations. When compared to state government, these other groups may have a small but nevertheless important stake in the enterprise. As a result, whatever budgeting processes are put in place by the state must serve the state's needs but not diminish the institution's ability to respond appropriately to other constituents. Second, of these various constituents, state government is the funder that must concern itself with the ongoing viability of its higher-education system. No other group has a material interest in the investment component of support to public colleges and universities. Others are better viewed as purchasers of services. Indeed, what sets state colleges and universities apart from their private counterparts is this public responsibility for the development and maintenance of institutional assets.

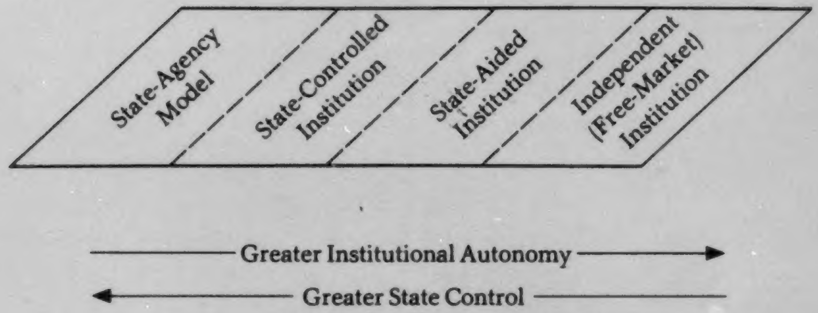
Governance

The budget is often the most tangible and direct link between state government and its educational institutions. However, the structure and purpose of that budget are often shaped by the governance relationships that exist between the state and these institutions. Although perhaps not immediately apparent on a day-to-day basis, these governance arrangements have a pervasive influence on how the budget is conceived and implemented. These relationships can be complex and, moreover, can differ greatly from state to state.

It is not the purpose of this book to describe these complexities in detail or to enumerate all existing varieties. Instead, it is far more helpful to consider the continuum of possible relationships. As suggested by Denis Curry, Norman M. Fischer, and Tom Jons (1982), these relationships span a broad spectrum (see figure 2). At one end of the spectrum, educational institutions are treated much like state agencies. At the other end of the spectrum, institutions function much like independent, nonprofit organizations with which the state contracts for desired services. In practice, of course,

FIGURE 2

Governance Relationships


State-Agency Model
State-Controlled Institution
State-Aided Institution
Independent (Free-Market) Institution
Greater Institutional Autonomy →
← Greater State Control

[SOURCE: Denis J. Curry, Norman M. Fischer, and Tom Jons, "State Policy Options for Financing Higher Education and Related Accountability Objectives," Finance Issue Paper, no. 2 (Washington: State of Washington Council for Postsecondary Education, Committee of the Whole, 18 February 1982).]

neither of these extremes is found in its pure state. Nevertheless, they represent the two poles of a continuum along which we can locate actual governance relationships. As we move along this continuum from the state-agency model toward the free-market model, we find that the state's role is increasingly circumscribed and that institutional autonomy expands correspondingly. As an expansion of figure 2, table 2 characterizes these different arrangements with respect to financing, budgeting, and accountability.

Drawing upon table 2, we can arrive at some conclusions about the close relationship between governance arrangements and the structure and function of the budget. As with all generalizations, there will be some exceptions.

Means versus Ends. Under the state-agency model, the state places emphasis on the ways in which institutions function. Important variables include such factors as class size and the number of contact hours faculty members are required to teach. At the other end of the continuum, the

TABLE 2

The Influence of Governance Relationships on Financing, Budgeting, and Accountability

CHARACTERIZATION	STATE-AGENCY MODEL (1)	"CURRENT" MODEL (NEEDS NEW LABEL) STATE-CONTROLLED INSTITUTION (2)	STATE-AIDED INSTITUTION (3)	CORPORATE OR "FREE-MARKET" MODEL (4)
Financing	1. All funds received deposited in general fund and subject to appropriation control 2. Fees and charges prescribed by legislature 3. Financial responsibility for higher-education operations would be vested solely in state government	1. Operating fee collections deposited into state general fund 2. Tuition levels prescribed by legislature 3. Services and activity fees, auxiliary-enterprise revenues, etc. treated as "nonbudgeted" funds 4. State government is primarily responsible for financing higher-education operations	1. All funds raised by institution retained locally 2. Fees and charges established by institutional governing boards 3. Only state general funds subject to state appropriation 4. Financial responsibility is shared by state and institution	1. Institutions have total control over all funds 2. State appropriations made to third-party state agency for purposes of contracting for services and enrollment opportunities 3. Ultimate financial responsibility vested in corporate institutions
Budgeting	1. The budget request would reflect a spending plan 2. Specific work-load factors would serve as basis for level of institutional request 3. Relative efficiency would be a major criterion 4. Legislature would approve spending level for various programs, major activities, and objects of expenditure within programs and activities. Adherence would be expected.	1. Variety of formulas and incremental bases may be employed 2. Detailed budget requests are prepared and submitted by institution, although major funding decisions are based on activity levels, base budgets, or other broad factors 3. Funding bases tend to be perceived as spending plans rather than funding vehicles	1. State support based on a general allocation formula—e.g., $/FTE resident student 2. Appropriation is on a lump-sum basis	1. Contract amounts determined through negotiation or external indices 2. Basic state-level budget decision would be number of spaces or levels of services to be "purchased"
Accountability	1. Accountability would focus on process considerations—adherence to spending plans, personal policies, etc.—and relatively little attention would be given to effectiveness of services provided	1. Major focus of oversight tends to be on process considerations with relatively little attention being given to effectiveness of services provided	1. Financial records must be auditable 2. Accountability reporting established as a parallel process and tends to focus more on effectiveness	1. Financial records must be auditable 2. Accountability provisions specified in contract that specifies meaning of "satisfactory performance"

[SOURCE: Denis J. Curry, Norman M. Fischer, and Tom Jons, "State Policy Options for Financing Higher Education and Related Accountability Objectives," Finance Issue Paper, no. 2 (Washington: State of Washington Council for Postsecondary Education, Committee of the Whole, 18 February 1982).]

free-market model expresses state interests in terms of purposes or ends. The question here concerns what services or opportunities the state is buying from the institution. In other words, the state-agency model emphasizes operational purposes; the state's priority is to have educational institutions function in a particular way. By contrast, the free-market model emphasizes strategic purposes; the state's priority is to have educational institutions achieve certain ends that serve broader state purposes. Clearly, different governance arrangements both presuppose and reinforce different state objectives for higher education, be they operational or strategic. In short, governance relationships reflect state priorities.

Accountability. Because state purposes for higher education are expressed in different ways under different forms of governance, accountability arrangements will also vary. Under the state-agency model, issues of accountability focus almost entirely on process and procedure, and emphasize primarily financial considerations. Were expenditures made in accordance with the details contained in the spending plan? Were stipulated procedures followed for handling a variety of transactions in such areas as personnel and purchasing? Because this form of accountability is largely financial in nature, the devices for ensuring accountability tend to be incorporated directly into the budget process. Figures about actual expenditures during previous years bear directly on discussions about future budgets. Issues of accountability under the free-market model focus less on financial matters and more on outcomes and effectiveness. As a consequence, considerably different data and reporting mechanisms are required to monitor and demonstrate accountability. These arrangements can be an adjunct to the budget process or can lie almost entirely outside of it.

Constituents. Under the state-agency model, the state looms as the overwhelmingly dominant constituent. When all funds, regardless of their source, are absorbed into the state general fund and allocated through legislative acts, the perspectives of other constituents are masked. Such circumstances militate against simultaneously achieving an array of products and benefits that serve other groups. These constituents simply lack the leverage they need to make their voices heard. Under the free-market model, the state is just one of several "customers" that the institution serves. This kind of governance creates great incentives for institutional administrators to maximize those benefits that serve a variety of customers. It also creates circumstances under which constituents other than the state have considerable incentive to enter into mutually beneficial arrangements with the institution.

When state guidelines become highly prescriptive, institutional managers are left with very little maneuvering room. This makes it more difficult to design activities that serve multiple purposes simultaneously. In turn, other constituents may be less willing to invest their funds in the institution under these conditions. When governance arrangements approach the state-agency model, institutions become less able to tap potential support from other constituents. Their revenues are derived almost exclusively from state appropriations.

Consumers and Investors. Under the free-market model, the state becomes a consumer of educational products and services. It invests in the educational system only insofar as it utilizes institutions in ways similar to other constituents. Under this model, preserving institutional viability becomes the responsibility of the individual college or university. In all other models, the state retains responsibility for creating and maintaining the system of higher education.

Methods of Resource Allocation. Governance arrangements do not necessarily determine the method of resource allocation. Various mechanisms for calculating the amount of support can be employed in all of these models. However, there are some obvious affinities. Under the state-agency model, educational institutions are treated like all other branches of government. Under such an arrangement, we can easily expect incremental budgeting on a line-item basis. Under the free-market model, the level of service as well as its price will be subject to negotiation. Between these two extremes lies the full panoply of arrangements that exist in the 50 states.

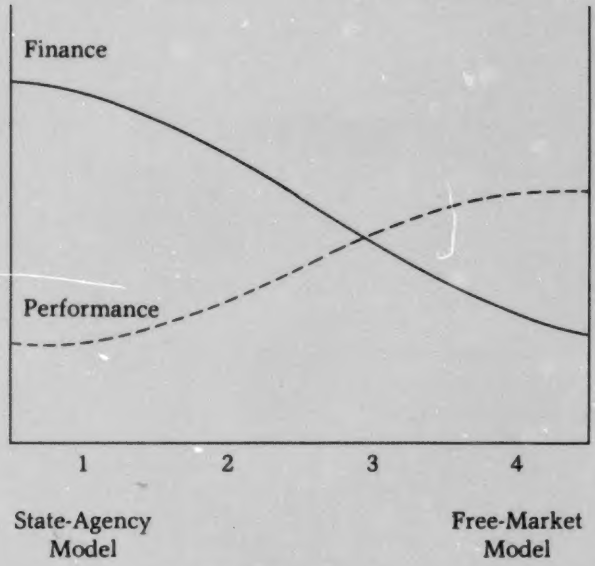
The relationship between governance and methods of resource allocation has further ramifications. As is illustrated in figure 3, the level of detail incorporated into budget calculations can vary. The amount of financial data employed in the budget process decreases as one moves toward the free-market arrangement. Conversely, the amount of data about performance, effectiveness, and outcomes increases. Under the state-agency model, the state concerns itself with all details of institutional functions and programs. Under the free-market model, the state is concerned with financial data only to the extent that it is used in justifying or negotiating the price of opportunities or services it chooses to purchase.

The above five points emphasize that the budgeting process is shaped not only by a state's educational objectives but also by its policies regarding governance and level of control. Indeed, these two notions work in close tandem to reinforce a particular approach. Tight state control goes hand-in-hand with procedural and operational purposes and leads almost inevitably to line-item budgeting and a finance-oriented accountability system. Less rigid state control provides the opportunity to include more ends-oriented purposes. This in turn promotes budgeting schemes and accountability mechanisms that focus on services rendered and objectives achieved.

As should be apparent, structural and philosophic forces provide the environment within which budgeting systems must be devised and assessed. These forces vary greatly from state to state. This should give considerable pause to anyone tempted to borrow new budgeting approaches from other states without investing considerable effort to understand the contexts within which it is operating. "Environmental fit" is a topic far too little discussed in the extensive literature on formula funding and other budgeting devices. By concentrating on basic concepts and emphasizing the broad context within which the budgeting process occurs, this book is designed to help fill this gap in both theory and practice.

FIGURE 3

Areas of Emphasis in the Budget Process



Production Relationships

Most educational outcomes can be produced in a variety of ways. In other words, educational production relationships are very loosely defined. For example, instruction can occur through large lectures or through small seminars, face to face or through such media as television. Similarly, research activities can be conducted by employing senior researchers, full-time technicians, graduate students, and undergraduate students, in widely varying proportions. Again, numerous factors influence just how a project is accomplished. There are no absolutes on how best to go about the business of education. Deciding which production relationship to employ is a function of institutional preferences, the skills of individual faculty, and the availability of faculty, facilities, equipment, and other resources. In short, selection of an approach turns more on traditions, values, and available resources than on validated prescriptions.

These loosely defined production relationships make it difficult to determine an appropriate or adequate level of state support for public higher education. Unlike the situation in many industries, there is no technologically induced "standard cost." What it *should* cost to carry out instructional activities is determined, if at all, through consensus and retrospective analysis. Consequences of past preferences weigh more heavily than do hard-and-fast relationships between inputs and outputs. As a result, the final decision about support levels is inevitably reached through negotiation rather than analysis. This phenomenon certainly creates incentives to hold on to traditional ways of doing business and builds enormous inertia into the system. To admit the possibility of significantly different ways of carrying out key functions is to abandon long-held negotiating positions. The potential losses that might be incurred in the interregnum and the uncertain success of new negotiating tactics create strong disincentives to change.

Although loosely defined production relationships make budgeting more difficult, they do allow for various efficiencies and encourage creative use of institutional resources. As we noted earlier, colleges and universities have a variety of constituents. Each contributes in some way to the enterprise, and each expects something in return. These expectations can differ, sometimes in the extreme. However, the vast majority are not necessarily incongruent. Flexible production relationships allow institutions to meet different expectations simultaneously through a single set of activities. Many programs and activities can be conducted in such a way that multiple clients can be satisfied at lower costs than would be the case for a single client. For example, when graduates of state institutions are hired by area businesses, the major objectives of the state, industry, and students are all accomplished. Industry receives competent, productive employees; students receive jobs and the economic benefits that come with those jobs; and the state benefits through economic development and through additions to its taxpayer rolls.

Analyzing these multiple outcomes is difficult because some are directly intended and accomplished by postsecondary institutions, while others are merely ancillary effects. The line that distinguishes what is actually produced on college and university campuses and what is not remains unclear. Moreover, some production relationships occur on technical grounds, while others are chiefly organizational in nature. Sheep raising is a good example of joint production that proceeds from technical considerations. Two outputs, wool and mutton, can be produced in varying proportions by a single production process. Each output is a natural, indeed necessary, consequence of the other.

Joint production in higher education occurs on different grounds. Colleges and universities produce outcomes jointly not out of technical necessity but for reasons of organizational efficiency and effectiveness. Clearly, it is not valid to separate one activity (such as teaching or research) and analyze production and cost relationships associated with it in isolation from all other institutional activities. Colleges and universities organize themselves to produce multiple, not single, outcomes through one set of coordinated activities because joint production can be more cost-effective. In other words, they wish to maximize the possibility of joint supply, a condition in which multiple outputs can be produced more cheaply together than separately.

The possibilities of joint supply on college and university campuses justifies their being assigned the various functions that are now commonly accepted as being within their purview. For example, much of the nation's basic research is conducted in research universities rather than in separately organized research centers. The rationale for this should be clear. Research activity produces knowledge while also educating a new generation of research scholars. Conversely, graduate education is such that it also yields new discoveries. The assumption is that combining both functions is, or at least can be, cost-effective.

Although colleges and universities generally undertake activities that yield multiple outcomes, their activities are not solely of this nature. If the expectations of certain constituent groups are to be met, institutions may have to institute special programs. The benefits of these activities may not spill over to other constituents. Expectations of local residents regarding community services may well be met in ways that don't benefit the student body, the faculty, or the institution in general. Students would undoubtedly prefer an array of support services designed to meet their various individual needs. Most difficult, however, are those situations in which expectations are in direct conflict. In such cases, meeting the expectations of one group precludes or diminishes the capacity of the institution to meet the needs of another. To cite a familiar example, providing educational programs of the quality sought by students and faculty may cost more than legislators can or are willing to appropriate.

The secret of effectively managing postsecondary institutions often lies in mastering the art of selecting or creating those sets of activities that will simultaneously achieve diverse purposes at the least cost. If institutional managers are to achieve multiple outcomes with the resources available to them, they must have the flexibility to construct appropriate production relationships and internally allocate resources in ways that promote such ends. Reducing this flexibility also reduces the possibility of simultaneously serving multiple constituencies with a limited set of resources. Constraints are imposed when constituents such as state government dictate not only ends but means. For example, strict requirements regarding maximum or minimum class size and mandatory assignments for senior faculty can actually hinder efficiency and effectiveness. In short, mechanisms for budgeting and accountability that dictate such operational decisions abridge flexibility and are not in the best interests of the funder. They reduce the possibility of designing activities that can satisfy multiple constituencies; they can increase, not decrease, the cost of providing services to all constituents.

It is much easier for an institution to integrate multiple services when the expectations of its constituents reinforce each other. Possibilities of joint supply are significantly improved when various parties expect similar services or, at a minimum, services that are not antithetical. This set of circumstances is most often found in institutions that have a clearly and commonly understood mission. Through a subtle natural selection process, such institutions attract constituents that have compatible expectations. Institutions that have particularly fuzzy missions or project an unclear institutional image to various constituent groups are most likely to be faced with irreconcilable demands from their various constituents. This is not to say that independent activities and programs cannot be established to respond to these needs. Indeed, such a capacity is one of the virtues of the large public university; it can put forward different faces to different audiences and do so successfully. What is lost, however, is the opportunity to gain some efficiency in the system. If state-level resource allocation is to take advantage of the benefits offered by joint-production relationships, administrators must be willing to devise schemes that are responsive to and reinforce different institutional missions.

The Structure of the Budget

Having discussed the function and scope of the budget and some of the contextual factors that must be considered when developing an approach to resource allocation, we can now consider in generic terms what structural components make up a budget. Higher-education budgets are formulated in nearly as many ways as there are states. Nevertheless, these many approaches can be viewed as combinations of only two basic forms: a multipurpose (core, general) component, and varied numbers of single-purpose (categorical, special) components.

The Multipurpose Component

Invariably the larger of the two components, multipurpose funding provides support for basic operations and programs. State allocations to the multipurpose component are accompanied by expectations that they will meet nearly all educational objectives. The majority of these purposes are closely interrelated, yet seldom are they made explicit in any orderly or comprehensive way. In many respects, it is difficult to achieve consensus about these purposes in anything but glittering generalities. Nevertheless, it is still possible to identify several key state purposes that are closely tied to the core component of the budget:

1. Access to higher-education opportunities. While access for state citizens is not an end in itself, many benefits do accrue from a more highly educated citizenry. This continues to make access to educational opportunity a basic state purpose and an ongoing priority.
2. Economic development. States are economic as well as political subdivisions. As such, a healthy economy is necessarily a state priority. Higher education can meet that objective through training and retraining of a skilled work force, through research and innovation that assist key state industries, and through its role as a major employer and industry in its own right.
3. Maintenance and enhancement of the educational system. Unlike other constituents of public higher education, the state has responsibility for developing and maintaining educational assets. It must decide the number and location of public postsecondary institutions; the mission, role, and scope of these institutions; and the level of quality to be sought.
4. Efficiency. Although efficiency is seldom listed as a major state priority, actual practice is such that it can hardly be omitted from the list. Indeed, it may be useful to incorporate efficiency into a more outcome-oriented list of state priorities so that inevitable calls for efficiency will be cast in terms of trade-offs that may impinge on effectiveness.

Because there are joint-supply considerations involved, the costs of achieving the above objectives cannot be parceled out and treated separately. This is why states seek to encourage joint supply through a single major allocation. The multipurpose component of the budget is designed to support activities that will allow institutions to achieve these multiple yet closely interrelated purposes.

The Single-Purpose Component

Although core funding for higher-education institutions may derive from the multipurpose component, no state can ignore the need to allocate special-purpose funds. Three basic reasons prompt states to approve single-purpose allocations above and beyond the multipurpose component of the budget.

First, the single-purpose component accommodates the fact that states may have specific objectives or priorities for higher education that are best met by allocating a special pot of money. In many cases these priorities may represent short-term rather than ongoing needs. In these circumstances, it suits both the state and the institution to create a "special project" to respond to the need, fund the project with special funds, and not incorporate these funds into the base allocation given to the institution. Under this arrangement, the state becomes, in essence, a consumer of services, with the financing arrangement serving as a purchase agreement. Neither party to the transaction expects, or should expect, the arrangement to be long-lived.

Second, the state may approve special-purpose allocations to create additional incentives for activities that are ongoing within the institutions but that have emerged as high priorities. Consider, for example, the recent need for teachers in bilingual education. Because of federal initiatives, many bilingual-education programs were already in place. However, there was a need to increase the number of graduates from these programs. Some mechanism was required to reward institutions for responding to this need, yet one that would not institutionalize increased capacity for an indefinite period of time. Single-purpose allocations provided precisely such a mechanism.

A third reason why states turn to single-purpose allocations is that certain ongoing priorities may be best served by only one or two institutions within the state system. Multipurpose allocations create incentives for similarity rather than differentiation. However, as we noted earlier, states are better able to foster joint productions in their educational system if institutional missions are both clear and differentiated. For example, such functions as research and medical education must necessarily be confined to a subset of state institutions. The same holds true of specialized vocational programs. The state cannot afford to offer these services at each institutional site. The single-purpose approach to resource allocation can foster and reinforce these desirable differences.

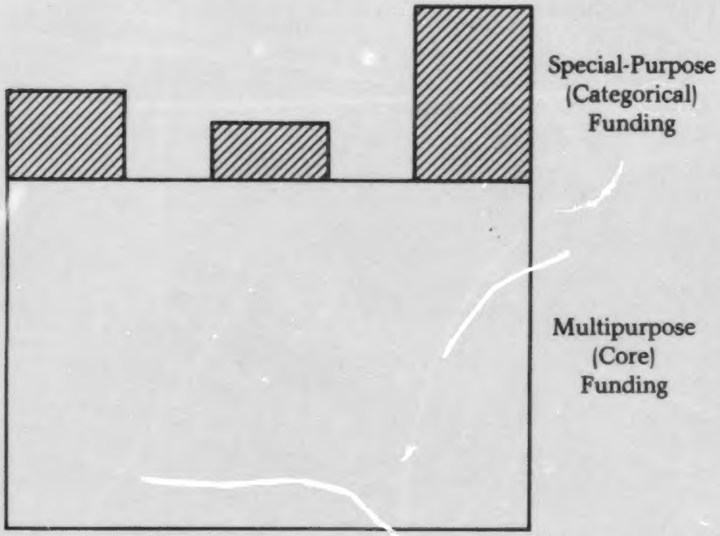
Combining Components

Combining multipurpose and single-purpose components of the budget yields an institutional appropriation such as the one illustrated in figure 4. Clearly, both forms of funding must work in tandem. When fiscal problems arise in state higher-education systems, they often result from misunderstanding, neglecting, or misusing one or both of these components. For example, when a state is unable to fund the core component adequately, it often seeks to compensate for this by approving additional single-purpose allocations. This approach appeals to legislators and others at the state level because it allows them to channel resources to the "truly needy." Moreover, this mechanism does not require the level of commitment necessary when funding the multipurpose component, where allocation guidelines are likely to call for equitable treatment of all institutions. However, as William Pickens notes, this approach can have undesirable consequences. Resource-allocation arrangements become "riddled with categorical or line-item programs which can reduce institutional flexibility, create protected enclaves which are unresponsive to changing circumstances, and tend to consume legislative time in details rather than discussions of general policy or overall educational effectiveness" (1981, p. 9).

By recalling that these two basic budgetary components serve very different purposes, administrators are more likely to make conscious, not inadvertent, policy decisions. Funds allocated through the special-purpose component will then serve the priority educational needs of the state rather than its bureaucratic need for a budgetary escape mechanism. If a budgeting system is to work effectively, states must apply the concepts we have introduced with considerable consistency.

FIGURE 4

Combining Budgetary Components



Although discussed more or less independently of each other, these basic concepts are indeed closely interrelated and reflect key assumptions governing the relationship between the state and its institutions. If the state exercises very tight control over the institution—viewing it, in essence, as a state agency—means rather than ends become the focus of both planning and accountability. This can discourage other constituents from investing in the institution and, in all likelihood, reduce possibilities of joint supply. Moreover, the very form of the budget will imprint this basic philosophy on day-to-day operations. If, on the other hand, the state's relationship with its institutions approaches that of the free-market model, possibilities for joint supply will increase, and planning and accountability will reflect greater concern for overall institutional effectiveness.

The coming chapters will focus on these relationships by assessing current budgetary practice and evaluating how states are responding to the budgetary issues of the 1980s.

3

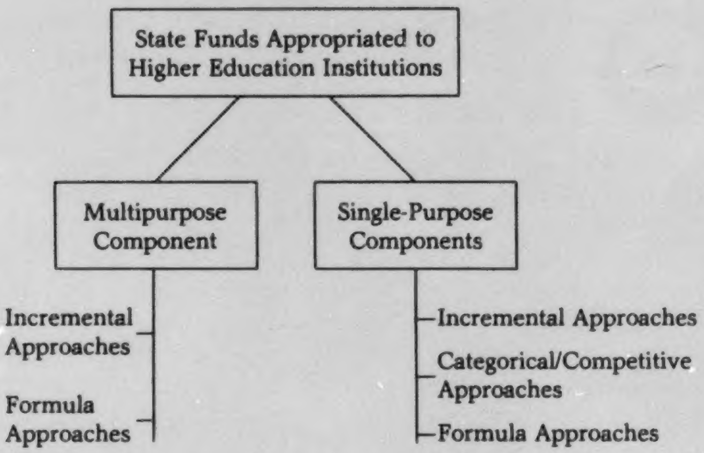
Customary Approaches to Resource Allocation

Although funding mechanisms for higher education vary from state to state, they share a common purpose: treating the disease that Shakespeare described as "consumption of the purse." Building on the concepts discussed in chapter 2 and enlarging upon the distinction between multipurpose and special-purpose components, this chapter describes various approaches that states use to fill the purses of their colleges and universities. The funding approaches assessed represent typical, even traditional solutions applied by a number of states. In the next chapter we will discuss how these approaches are being modified to account for the new fiscal, demographic, and educational realities of the 1980s.

Figure 5 illustrates how these various approaches relate to multipurpose and single-purpose components. As we explore each of the avenues represented in figure 5, it will be evident that we devote considerable attention to formula approaches. There are several reasons for this. First, approximately half of the states use formulas at some stage during the resource-allocation process. Formulas thus represent a significant element of current practice. Second, and perhaps most importantly, policy decisions are made fairly explicit in the formula approach. As a consequence, one can readily identify the variables that determine the level of allocation, and the relationship of state priorities to these variables.

FIGURE 5

Customary Approaches to Resource Allocation


State Funds Appropriated to Higher Education Institutions
Multipurpose Component
Single-Purpose Components
Incremental Approaches
Formula Approaches
Incremental Approaches
Categorical/Competitive Approaches
Formula Approaches

In other approaches to resource allocation, criteria for budgetary decisions are not nearly as transparent. Finally, much of the literature on state-level financing deals with formula approaches, if for no other reason than that these approaches lend themselves much better to description and analysis than do less rigorously formulated alternatives. However, readers should not infer that formula approaches are better or worse than other alternatives, only that they are more easily described and assessed.

The Multipurpose Component

Any overall scheme for resource allocation must generate funds for multiple, basic purposes. Allocation levels for this multipurpose component are generally determined through one of two approaches: incremental funding or formula funding. In the incremental approach, the previous year's allocation is taken as a point of departure. This amount is then adjusted up or down depending on changes in a handful of basic factors. In the formula approach, a sometimes simple, sometimes complex set of decision rules is devised and reduced to quantitative form. This formula prescribes independent variables and methods for determining coefficients; the amount of the budget request becomes the dependent variable.

After reviewing the strengths and weaknesses of both approaches, we reach the conclusion that they are not as different as they seem. Picking between the two approaches is less important than ensuring that the selected approach is designed to promote desirable, not counterproductive, ends.

Incremental Budgeting

The incremental approach serves as a convenient method for adjusting, not refiguring, the budget to reflect changing circumstances. This is likely why it is the oldest and most established form of budgeting for colleges and universities. In all probability, it is also the most prevalent. Because it represents a less formalized and structured approach to resource allocation, incremental budgeting is rather difficult to describe in comparative terms. As a result, it figures less prominently than formula funding in scholarly research literature. The different ways that states implement incremental budgeting has yet to be documented adequately.

Two key assumptions allow us to describe the salient characteristics of incremental budgeting. The first premise is that the previous year's allocation, the so-called base, was adequate and appropriate. The lion's share of the allocation (often 90 percent or more) is not reexamined; the allocation process takes this base as a given and proceeds from there. Moreover, this base is expressed in financial terms rather than in work-load or program terms. This feature is consistent with incremental budgeting's proclivity not to reassess the past.

The second premise is that nearly exclusive attention is devoted to the size of incremental changes to that base. Fairly standard variables enter into the decision process:

1. The number of additional students served or the increased amount of access provided.
2. Inflation or other changes in the cost of acquiring or retaining necessary resources.
3. The addition of either programs or significant new resources, such as equipment or library holdings.
4. Changes undertaken to improve the capacity of the institution in ways considered desirable.
5. The state's ability to pay. Regardless of any changes in the above factors, states cannot spend resources that they do not have.

Incremental-budgeting practices differ considerably from state to state. In Illinois, for example, increments are based on prices of resources and numbers of students served. Institutions in the state are encouraged to start new programs by reallocating resources rather than by requesting an infusion of new funds. Other states, however, have ceased to fund growth, at least at certain institutions. Generally speaking, the variables that most directly affect the increment are often as much a function of tradition and vested interests as of changed circumstances. Rationales for budget requests are stated in terms found to be acceptable and workable. Over a number of years, a unique set of standard operating procedures has evolved in each state.

Incremental budgets have much to commend them. They are, above all, incredibly practical. By focusing on a feasible set of adjustments, they inherently recognize that there are significant limits to the extent and nature of change that can be accomplished within a college or university from year to year. Moreover, this approach has the virtue of being very adaptable. The increment can be devised and structured in such a way that additional funds can be channeled to high-priority areas. These priorities can be changed annually, reflecting a response to enrollment changes in one year, changes in energy prices or salary costs in another, and creation of needed new capacities in a third year.

In practice, however, incremental funding is likely to be an exercise in reaction rather than proaction. Funds are generally directed toward the institutional squeaky wheel rather than toward state priorities. Moreover, incremental funding rarely examines past budgets or the values and assumptions that they harbor. This creates a situation where errors are easily compounded from year to year. As a result, the incremental approach seldom becomes an effective tool for implementing state policy.

Many of the drawbacks to incremental budgeting are also those features that make the approach politically attractive. The base is seldom jeopardized; when it is, institutions generally share the pain equally. Moreover, increments are based on such recognized variables as inflation and changes in the number of students served. In short, the approach is politically attractive because it avoids value-laden issues such as state priorities and educational policy. It is popular with institutions because it does not provide an inherently strong framework for accountability. Performance factors seldom if ever directly determine the level of allocation. Finally, the approach rarely upsets the distribution of funds among state institutions, a distribution deemed equitable if for no other reason than tradition. Sniping among institutions is not likely to occur when the base is established as a given and when the increment is calculated from factors generally applicable to all institutions concerned.

When judged in terms of the principles that we have developed in our discussion, incremental budgeting emerges as a workable, though far from perfect, solution. While it distributes resources with relatively little fuss, it is not a particularly useful device for translating plans into actions or for promoting accountability. This budgetary approach rarely makes state priorities as clear as they might be. Although this method seldom jeopardizes the base, it does not eliminate uncertainties regarding the increment.

It should be noted that incremental budgeting does not itself enhance or impede an institution's ability to foster conditions under which joint supply occur. More immediate factors include the level of budgetary detail and the extent to which accountability is viewed merely as an institution's capacity to keep fiscal expenditures from outstripping resources. When the budget and its framework for accountability become detailed and rigid, institutional managers have little opportunity to develop some obvious opportunities for producing multiple outcomes through joint supply.

Formula Budgeting

Formula approaches to higher-education finance have received considerable attention during the past 20 years. Literature on formula funding grows more extensive each year. In the midst of all this attention, however, one senses an increasing lack of clarity regarding what formulas are designed to do, what their characteristics are, and how they relate to state policy. Instead, the focus has shifted to the mechanistic: "How can formulas be structured so that they keep revenue coming in while still remaining politically acceptable?" States prefer to tinker with existing formulas and to see what might be borrowed from other states to solve their own immediate problems. There is little evidence in the literature of a fundamental reassessment of formulas, the conditions and needs they should address, and how they should be developed to meet current state educational objectives. A prerequisite for any such assessment is an awareness of the conceptual and historical roots of formula budgeting.

In his seminal work on formula budgeting, James Miller reported that the first examples he could find of this approach date from 1950. For purposes of his study, he used the term formula as referring

> to an objective procedure for estimating the *future* budgetary requirements of a college or university through the manipulation of objective (quantitative) data about future programs, and relationships between programs and costs, in such a way as to derive an estimate of future costs. A formula is typically applied uniformly to either (a) groups of comparable institutions such as "state colleges," or (b) comparable activities within a group of dissimilar institutions, such as "lower division liberal arts instruction," or "custodial services for classroom buildings." [1964, P. 6]

William Pickens employs a similar definition when he states that formulas are

> a mathematical means of relating the workload of a public institution to its State appropriation. Functionally, statewide formulas are the bridge between costs and workload analysis (historical information which determines relationships between programs and expenditures) and the State budget (the document which contains the approved level of expenditures). [1981, P. 8]

Although the above definitions describe the quantitative dimension of formula funding with sufficient precision, they do not take into account the context in which formulas actually function. Richard Meisinger is not alone when he quarrels with the formal character of Miller's definition, thereby reminding us that formulas have a functional dimension.

> On the surface, a formula appears to be nothing more than a mathematical relationship which states that under certain conditions (e.g., a level of enrollment) an institution will receive X dollars from the state. In fact, a formula is a combination of technical judgments and political agreements. Because the formula is a set of guidelines for the distribution of scarce resources among competing institutions, there is a considerable amount of self-interest reflected in its establishment and use. [1975, P. 2]

In other words, Meisinger argues that the "mathematical relationship" central to the formula process is arrived at not by analysis of objective data or technical judgments alone but by analysis that is leavened by liberal amounts of negotiation and political agreement. No one who has observed the formula process in action could quarrel with the manner in which Meisinger has broadened its traditional definition.

With respect to their structure, formulas have two basic forms. The first calculates allocations by multiplying some work-load measure (such as the square feet of space to be maintained or the number of student credit hours) by a rate that may be either normative (negotiated or traditionally accepted) or analytically derived (a technical judgment based on cost studies). This method can directly translate base factors into dollars, as in the case of student credit hours:

$$\$ = \text{SCH} \times \frac{\$}{\text{SCH}}$$

It can also introduce an intermediate step whereby workload measures are converted into resource needs (such as the number of faculty), to which dollars are then attached:

$$\$ = \text{SCH} \times \frac{\text{FTE FAC}}{\text{SCH}} \times \frac{\$}{\text{FTE FAC}}$$

It is important to recognize that choosing between these two alternatives is no mere accounting decision; it is a policy decision of considerable consequence. A second method for structuring a formula establishes a base for key functions, such as instruction, by employing one of the approaches described above. It then funds other functions, such as administration or library services, as a percentage of that base:

$$\begin{aligned} \$ = \text{base} &+ X\% \text{ (base) for administration} \\ &+ Y\% \text{ (base) for library} \end{aligned}$$

Here, too, the structure of the formula holds important policy implications.

It is instructive to note that the factors that "drive" formulas are exactly the same ones that determine the size of the increment in the incremental budgeting approach. These factors are typically the number of students served or the price of certain resources. When considered in this light, the differences between formula and incremental approaches become more procedural than substantive. True, formula approaches do make the algorithms for resource allocation quite explicit, while in the incremental approach, the procedures remain both more implicit and more variable. This difference in form, however, should not obscure the fact that both approaches are very similar in substance.

Although nearly all approaches to budgeting are inherently bureaucratic in nature, the formula approach allows states to regularize the decisionmaking process. Indeed, formula funding represents an effort to streamline a process that occurs on an annual (or in a few cases biannual) basis and incorporates virtually the same factors from year to year. Allocations are determined through the application of carefully prescribed policies, procedures, and decision criteria. Formula funding is, in short, a procedure for handling decisions so that they will not have to be treated anew each time they recur. It indicates what factors will be considered in calculating budget requests and how these factors will be incorporated into the formula.

The high degree of bureaucratic procedure characteristic of formula funding serves to limit the role of politics when actually allocating resources. To be sure, decisions surrounding the original construction of formulas tend to be political in nature, sometimes in the extreme. And with good reason; decisions made while structuring formulas will affect the participants for many years to come. In this respect, reaching agreement on the structure of a formula is similar to negotiations surrounding a collective-bargaining agreement. Both processes are highly political. Once concluded, however, the agreement prescribes standard operating procedures for all parties. Upon implementation, the emphasis shifts from determining the procedures to living by them.

Formulas share many of the strengths and limitations of other bureaucratic procedures. They make explicit which factors will be considered in the decision process. As a result, focus is directed at procedural variables, although these may not be *policy* variables that reflect in any direct way state purposes or priorities. These factors are known equally well to all participants. In this respect, they improve communication and enhance the efficiency of the resource-allocation process. In the words of Meisinger, these clearly defined factors "establish the areas of discretion and the limits of debate" (1975, p. 7). Meisinger continues by noting how formulas lend stability to and remove uncertainty from the decision process. Formulas reduce the complexity of budgetary standards, provide an agreed-upon framework for discussion, establish limits for additions to or deletions from the budget base, and provide an objective basis for determining institutional "fair shares" (p. 9ff). In other words, formulas carry with them the aura, if not the reality, of equitable treatment. Because budget requests for all institutions are calculated according to the same procedures, the process itself seems evenhanded. The hidden assumption, of course, is that the values and policies implicit in the process are themselves equitable.

As with many bureaucratic procedures, strengths can also be perceived as limitations. While formulas are designed to be equitable, they can also level institutional quality. Although they do limit the role of politics in resource allocation, they can perpetuate old value judgments well past the time when new ones are called for. The very stability that formulas create may in time harden into rigidity.

Because formulas are bureaucratic procedures for carrying out decisions that were made at the time the formulas were constructed, it is crucial to ask whether those decisions reflect current realities. In short, we must recognize that formula funding has historical roots. Many if not most formulas date from the 1950s and 1960s. They were devised to enable the state and its institutions to cope with the flood of new students, a very reasonable objective given the conditions prevalent at that time. When these formulas were originally constructed, two state purposes were uppermost in the minds of state administrators: (1) institutions should be funded *adequately* and be given sufficient resources to accomplish their increasing work loads, and (2) institutions should be funded *equitably,* with different institutions being given equal support for similar activities. Both purposes reflect an underlying presumption of growth.

Although conditions have changed considerably over the past 20 years, the basic structure of formulas has not. The fixed procedures characteristic of formulas and other bureaucratic mechanisms are designed to function in a stable environment. They have legitimacy only so long as the decision criteria imbedded in them remain valid. When conditions, or desirable responses to those conditions, change to a significant degree, then the procedures must be restructured accordingly. In most states, however, formulas have been only modified marginally over time. Coefficients have been changed, detail has been added, and other changes have been made that do not alter the basic structure of formulas and, by extension, do not challenge the underlying assumptions and decision criteria incorporated in those formulas. These modifications have had the effect of elaborating, not redirecting, the resource-allocation process.

As a result, some formulas originally designed to respond to increased student enrollments now provide incentives to *create* those enrollments. New students are sought not because they are there, but to ensure the flow of dollars into the institution. Many educational systems are now operating as if the primary objective from the state's perspective were the *expansion* of access for individuals of all kinds. This in turn creates incentives for institutions to:

1. Recruit and admit students who previously would not have been admitted (thereby lowering admissions standards)
2. Approve credit for courses that were previously noncredit courses (thereby lowering academic standards)
3. Retain students once they are admitted (an admirable objective when not accomplished through grade inflation and reduced academic standards)
4. Proliferate programs in an effort to respond to the interests of more potential students

Increased public access to higher education is not itself bad. In many states, however, it has become an objective by default, not design. Ideally, form should follow strategy; that is, budgetary formulas should reflect state priorities and objectives for higher education. In some states, however, changing environmental conditions have created circumstances in which strategy is now heavily influenced, if not determined, by the formulas employed.

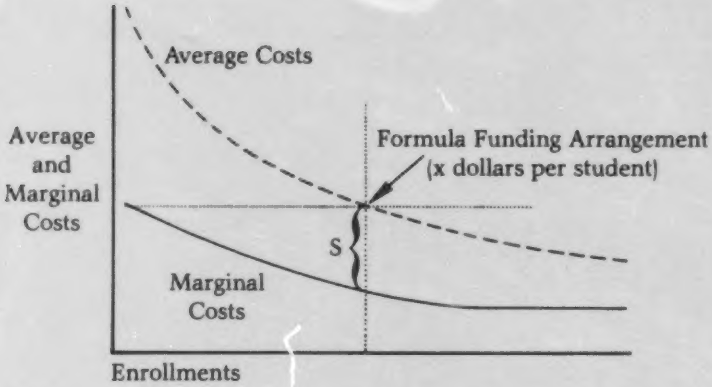
The presumption of continued growth under which formulas were originally designed has proven to be wrong. Recognizing this has been painful for institutions and state governments alike. The often devastating effect of this presumption can be best illustrated by considering the difference between average and marginal costs. Most formulas reflect the average cost per student, which is calculated by dividing total costs by the total number of students. The assumption is that additional students will each cost the institution an additional "average" amount to educate. Marginal costs, on the other hand, reflect the "extra" costs associated with adding an "extra" student. By reflecting that portion of costs that varies by the number of students, the marginal cost more closely represents the actual financial experience of educational institutions.

Typical cost curves for both approaches are depicted in figure 6. Because institutions do experience some economies of scale, marginal costs tend to be lower than average costs over at least the lower end of the enrollment range. Under a typical formula arrangement, an institution will receive x number of dollars for each additional student. The lower marginal costs incurred by the institution result in financial slack under conditions of growth. This slack has historically allowed institutions to achieve additional state purposes, such as higher quality and program diversity, within the limits of the resources made available to them.

The passage of time, however, has left us with merely the tangible. Formulas are transmitted as written hieroglyphics, but the passing years have eroded our understanding of the conditions that prevailed and the purposes that were pursued when those formulas were designed. Presumptions of growth led institutions to expect the financial slack they enjoyed due to the difference between average and marginal costs. However, under conditions of decline, this slack becomes a shortfall. When the state subtracts x number of dollars for each student that the institution no longer enrolls, the school may enjoy only marginal savings, and hence a net financial loss. Recent conditions of decline have proved difficult for colleges and universities precisely because the

FIGURE 6

Average versus Marginal Costs



S = Slack under conditions of growth
Shortfall under conditions of decline

budgetary mechanisms in place operate under entirely different presumptions. This recent experience is encouraging some states to radically reconsider, not merely modify, their approaches to formula funding.

As should be evident from our discussion of formula funding, this approach to the multipurpose component of the budget does very little to link state plans and priorities with real actions and initiatives. Indeed, it may create incentives that are contrary to state objectives. Likewise, it does not provide adequate frameworks for accountability. Relatively little data that measure performance or the achievement of state purposes are incorporated directly into formula calculations. Indeed, the basic performance measure utilized by formula funding—the number of full-time equivalent (FTE) students served—is only an imperfect proxy measure of whether the state institution is meeting the traditional objective of improved access. Instead, FTE calculations compensate the institution for effort or work load rather than the total number of state citizens served. While there are legitimate reasons for considering instructional service instead of access, they are nevertheless very different objectives.

This emphasis on work loads rather than outcomes is also evident in the way that efficiency objectives are factored directly into formula calculations. Because cost factors are necessary components of formulas, efficiency in the narrow technical sense is achieved by holding these factors to a lower level. However, the efficiency achieved is often bought at the expense of reduced effectiveness.

The manner in which formula funding tends to approach accountability has implications regarding governance arrangements. Most multipurpose formulas become more specific over time. Modifications in the formula structure attempt to replicate the actual expenditure patterns of institutions. As a result, many formulas move away from the simple base variable of FTE students and incorporate new distinctions by course level, and then by major. Likewise, there is a tendency to break down the coefficients in the formula to reflect different factors of production (different line items) and the varying rates at which prices change for these factors. In the end, this transforms these calculations into a spending plan to which the institution is held accountable. This greater specificity can result in governance relationships that are more state dominated. While various approaches to resource allocation do not themselves determine governance arrangements, it is instructive to note that systems that approach the state-agency model are those likely to employ detailed formulas.

As designed in the 1950s and 1960s, formulas were structured to achieve the goals held out for them: the provision of resources *adequate* to meet institutional needs on an *equitable* basis. In this respect, formulas were able to respond adequately to a particular situation. They have not, however, been able to respond adequately to change. The twin effects of demographic shifts and economic stagnation have forced many states to reconsider the concepts, principles, and objectives at work in their budgetary systems.

Comparing Multipurpose Approaches

Like so many first impressions, the formal distinctions between incremental and formula funding are in many respects deceptive. Because they can be easily distinguished, the two approaches are often treated as alternatives having little or no common ground. Although conventional, this view perpetuates a distinction without substantive difference. Both approaches, in fact, have much in common. Aside from the necessary requirement that they both provide the framework necessary for calculating budget requests, incremental and formula approaches are similar in four other respects.

1. The factors used in determining the size of the increment are the same as those that directly or indirectly influence most formulas. These factors include the number of students, the price of resources, and efficiency ratios (the relationship between the levels of activity or service provided and the resources utilized). As a consequence, the same institutional incentives obtain in either case: enroll more students, demonstrate that resource prices are higher (in the case of utilities) or too low (in the case of faculty salaries), and argue that efficiency impinges on quality or other desirable purposes.
2. Both approaches can accommodate very different levels of detail. They can function at a very aggregate level, where, for example, an increment is calculated as a flat percentage of the base or where a formula is based on dollars per FTE student. However, both can be constructed so that they require an inordinately disaggregate level of detail.
3. Regardless of how the calculations come out, neither approach can force the state to allocate resources it doesn't have. The two budgetary approaches merely require the state to implement reductions in different ways. In the case of the incremental approach, the state makes the increment smaller or imposes actual reductions. With formula approaches, the state typically

resorts to funding institutions at a percentage of the formula.

4. Neither approach to multipurpose funding represents a particularly good framework for accountability. Although designed to provide institutions with the core funding necessary to achieve multiple purposes, neither budgetary approach is able to monitor whether these purposes are adequately achieved. Whatever attention is accorded to accountability becomes focused on access and efficiency, often to the exclusion or detriment of other purposes.

This is not to say that incremental and formula approaches do not differ, but to suggest that their differences lie in areas not often recognized. The truly important distinctions become apparent when we consider not how budgetary calculations are made but how each approach functions in an organizational and political context.

The formula approach makes ground rules explicit. It also removes uncertainty by allowing both state and institutional administrators to determine what the budget might be like given certain future conditions. In this sense, formulas serve as a "contract" between state government and postsecondary institutions. However, the primary benefit may go to state institutions themselves. Formulas serve to stabilize the distribution of resources among individual campuses. Any change in proportional distribution must derive from changes in readily understood variables rather than from the lobbying power of favored institutions. This has the effect of confining politics to the design stage. As long as the formula stays intact, calculations remain a technical exercise. Although viewed positively by many administrators, limiting politics can also remove regular consideration of state priorities from the budget process.

Incremental budgeting has its own way of reducing uncertainty. In all but the most dire circumstances, the base level of funding is not threatened. Uncertainty is confined to the size of the increment and the rationale for it. Once implemented, formulas become rigid structures; adding a new variable requires, in effect, a renegotiation of the entire contract. In this regard, incremental budgeting is much more flexible. A wide variety of state purposes can be reflected in the rationale for the larger increment. This makes the incremental approach more susceptible to politics but also more responsive to changes in state priorities.

The Single-Purpose Component

Although states allocate the vast majority of their support for higher education through the multipurpose component of the budget, a significant portion of state funding is determined apart from the core or outside the formula. The special-purpose component enables states to pursue specific objectives and meet high-priority needs. That these two components have very different roles is, however, rarely clear in the minds of most administrators. Instead of supporting important yet limited objectives, the special-purpose component often serves as a convenient way of sidestepping budgetary restrictions. Good rationales can be presented by the state and institutions alike for either increasing or decreasing the role of special funding. However, its judicious and appropriate use requires that all parties understand what special-purpose approaches are available and recognize their strengths and weaknesses. We will consider three such approaches.

Base-Plus-Increment Approaches

Widely used in support of multipurpose functions, the base-plus-increment approach can also be used in a single-purpose context. The incremental approach is particularly suitable when an activity is ongoing and when separate funding for that activity serves to differentiate the mission of the institution performing that function. Such allocations typically support a single unit or program within one institution. For example, it is likely that one particular university campus manages and operates the state's educational television system on behalf of the entire state system. The teaching hospital at the medical campus obviously has special needs that cannot be met by systemwide funding. Moreover, public-service activities must be tailored to specific needs of the community surrounding a particular institution.

Because the incremental approach to resource allocation can be used in both multipurpose and special-purpose contexts, the decision to treat funding for certain activities or programs as separate items is in essence an accountability decision rather than a resource-allocation decision. Separate treatment allows the state specific oversight on both a financial and program basis. Obviously, it is easy to carry this arrangement to an extreme. Treating all institutional programs as single-purpose rather than multipurpose activities would indeed create not only a line-item budget but also a governance arrangement very close to the state-agency model. Used selectively, however, the base-plus-increment approach is a reasonable one.

The flexibility of the incremental approach makes it a particularly attractive option for special-purpose funding. However, this flexibility does exact a price. Because decision criteria are not specified, annual changes in the budget for certain programs remain uncertain. Isolating the funding of certain programs or activities can also reduce joint-supply conditions. This in turn can ultimately translate into higher operating costs for the institution. As in all applications of the incremental approach, accountability mechanisms must be created separately from or added to the budget process. Failure to do so inevitably reduces accountability to merely financial terms and restricts the attention that can be directed to performance considerations.

Categorical or Competitive Approaches

A second way to allocate funds for special purposes is the competitive or categorical grant approach. The state specifies the purposes it wishes to accomplish and provides guidelines for those applying for the special-purpose funds. Applications are rated by a review panel, usually against a set of preestablished criteria. The winning proposals are funded in rank order down to the point where the money runs out.

This approach to special-purpose funding has several advantages. The state is able to be quite specific about which purposes and objectives it wishes to pursue. In turn, program directors at institutions are clearly aware of the goals that they must meet. Moreover, this approach provides a clear separation between ongoing multipurpose funding and short-term special-purpose funding. Recipients of these grants are not likely to mistake categorical funds as an integral part of their operating budget.

If it is well designed, the categorical approach also provides a straightforward and effective framework for accountability. Although accountability data per se are not an inherent part of this allocation process, both the statement of purpose for the categorical program and the evaluation criteria used to select winning proposals establish clear expectations and goals. In essence, this framework for accountability derives directly from the design of the allocation process. The project is expected to accomplish what was promised in the proposal. In many instances, actual accountability data (post facto reporting on the accomplishments of the project) are required as a condition of the award. However, such data do not usually enter directly into the allocation process.

Formula Approaches

Formula funding can play a significant role in the special-purpose as well as the multipurpose component of the budget. In many respects, formulas are ideally suited to promote specific and important objectives. They can provide positive incentives for achieving these priorities and can offer accountability as an integral component. For example, if the state places high priority on increasing trained manpower in specific occupational fields, it may turn to capitation formulas that allocate funds on the basis of the number of degrees granted in those areas. Not only are institutions rewarded for responding to state priorities, accountability data (in this case, the number of degrees granted) are a necessary and integral factor in calculating the allocation.

Such arrangements fit the ideal criteria of special-purpose funding: they are designed to allocate resources in a way that directly reflects specific state priorities and that includes appropriate mechanisms for accountability.

Although states have made little use of capitation grants to promote education and training in certain occupational fields, they have employed the method to compensate private colleges for their educational efforts. New York state's Bundy Aid Program is a prominent example of this arrangement. This program is designed more as a support mechanism for private institutions than as a program specifically intended to develop trained workers or an educated citizenry. Nevertheless, implementing the Bundy formula translates this objective into an incentive system for institutions to graduate students. In this case, the accountability mechanism is again an integral part of the allocation.

While formulas seem particularly well suited to many single-purpose applications, it is surprising how few examples can be found. That these applications go unrecorded is a plausible but unlikely explanation. Even states that use formulas for their multipurpose component often turn to base-plus-increment approaches for specific programs and activities. This situation reflects an outlook also common in multipurpose funding. States have adequacy as their primary objective. They wish to provide sufficient funds that will allow institutions to carry on certain programs or operate certain facilities. This emphasis on means and the consequent disregard for ends or objectives become particularly counterproductive in special-purpose funding, where outcomes are the self-evident reason for allocations.

Assessing Strengths and Weaknesses

As should be evident from our discussion, there is no necessarily right way to allocate state funds to institutions of higher education. Different approaches have different characteristics. If one is to assess adequately their strengths and weaknesses, one must evaluate approaches with respect to sound budgeting principles and the organizational and political context in which state funding operates. The following summarizes the various approaches we have discussed in light of the concepts and principles developed in the previous chapter:

A. The Multipurpose Component
  1. Incremental approaches
    - Allow flexibility in determining the rationale for increments
    - Maintain integrity of the base
    - Do not include accountability factors as an integral component
    - Retain some uncertainty from year to year
  2. Formula approaches
    - Make decision factors explicit
    - Reduce uncertainty
    - Inhibit flexibility, not easily adapted to new circumstances
    - Include few accountability factors as integral components; tend to skew focus of accountability

B. The Single-Purpose Component
  1. Incremental approaches
    - Provide appropriate funding mechanisms for ongoing single-purpose activities
    - Allow flexibility
    - Do not specify decision criteria; yearly budgetary changes remain uncertain
    - Do not make accountability factors explicit; create a tendency to focus on financial rather than performance aspects of accountability
  2. Categorical or competitive approaches
    - Make objectives to be pursued explicit
    - Provide an inherent framework for accountability, although performance data are not incorporated into allocation process
    - Involve considerable judgment in selecting "winners"; require careful attention to maintaining the integrity of the system

- Provide a particularly useful approach for one-time or short-term objectives

3. Formula approaches
    - Allow objectives to be made an explicit part of the formula
    - Incorporate accountability factors (performance data) as an integral part of the formula
    - Make decision criteria explicit and rigid
    - Reduce flexibility

The approaches we have discussed in this chapter are customary solutions to state-level financing of higher education. However, the economic and demographic realities of the 1980s have forced both states and institutions to recognize that a new generation of solutions is needed or, at the very least, greater wisdom in applying or modifying these customary approaches. In the next chapter we consider some of these new responses.

4

Budgeting in the 1980s: Responding to New Realities

Emerging Issues

The passing of one generation has brought new concerns to higher education while simultaneously challenging accepted responses. The 1980s are clearly unlike the 1960s. Two decades ago the issue was accommodating the flood of new students; now the concern is recruiting enough students to maintain the funding base. Then the issue was building enough new buildings to provide classroom space for the flood of students; now the problem is finding the capital funds necessary to renovate and repair all of those buildings. A generation ago universities scurried about to educate and recruit enough new faculty to teach the burgeoning student body in those new classrooms; today's challenge is to maintain the professional currency and vitality of faculty enticed into the academy during the boom years. Economic conditions have likewise changed, in some states dramatically. This exacerbates the difficulties that colleges and universities are having in adjusting to these new conditions.

For budgeting to remain effective, it must recognize and accommodate these changes. Looking back over the years, some of us might question the wisdom of our elders. However, as Robert Frost reminds us, "Most of the change we think we see in life / Is due to truths being in and out of favor." Higher education responded appropriately to the challenges it faced two decades ago. Those "truths" have not been proven wrong; the passage of time, however, has rendered them inappropriate for today. Our error lies in not adapting to change. Several basic assumptions underlying customary approaches to resource allocation are no longer valid in our new circumstances. Some states are only now challenging those assumptions; others have discarded them as they search for tenable alternatives.

Perhaps the most important of the traditional assumptions was that state revenues would steadily increase. Thus, successive generations of both administrators and legislators expected that higher education would continue to get its share of an ever-larger pie. Three corollaries follow from this assumption. Each in its own way has contributed to a legacy of higher-education financing that now finds, in the 1980s, many unwilling heirs.

The first of these corollaries is that last year's allocation is the absolute minimum to be expected from the state this year. In other words, once established, the base allocation becomes inviolable. This has been true whether the base was calculated by an incremental or formula approach. When the number of students has decreased to the point that the formula has generated fewer dollars than in the previous year, institutions have generally found ways to avoid actual reductions in state appropriations. Recent research indicates that states place priority on maintaining funding floors under institutions that are losing students in preference to increasing funding levels to those that continue to grow (Folger 1982).

The second corollary is that even if an institution is not experiencing growth, it can expect increases in appropriations to offset the effects of inflation. Under the incremental approach, administrators could always argue for an increase due to the higher cost of goods and services. Under the formula approach, they could likewise argue that coefficients had to be adjusted upward to reflect the consequences of inflation.

The third corollary contributing to current resource-allocation practices concerns enrollments. If more students enrolled at an institution, the state was expected to provide additional funds to subsidize their education. A variety of elaborate procedures have been devised to determine the size of this subsidy. These procedures have in common one basic feature: they are based on the economic concept of average costs. In other words, the subsidy for each additional student equals the average cost of educating similar students with commonalities such as major, level, and degree of full-time equivalency. Again, this assumption has prevailed regardless of budgetary approach. In incremental funding, more students have traditionally meant a larger increment. In formula funding, the most important dependent variable in the equation (the number of students) was increased, thereby increasing the independent variables (the dollars requested).

A generation ago, higher education was a growth industry. Managing growth is not only easier and safer than managing decline, it is also something most higher-education administrators learned how to do through years of experience. If a mistake in judgment or an error in resource allocation was made, it could be rectified the next year using additional funds. Moreover, in periods of growth, the average cost of admitting an additional student is greater than the marginal cost. Since institutions were receiving funds at an average-cost rate and expending them at a marginal-cost rate, they acquired a pool of discretionary resources. Schools could tap those funds to maintain quality and accommodate growth simultaneously. Expenditures on new programs, new equipment, and more competitive faculty salaries were not seen as mutually exclusive options.

These assumptions are far more than a contagion that infected the resource-allocation process, or vague notions that informed its context. They have been woven into the very fabric of the funding process. The incremental approach utilizes, as a fundamental tenet, the "base-as-floor" assumption, on which rest all rationales for larger increments. Formulas go even further. Their structure is such that these assumptions are built into the calculation algorithms themselves. In short, higher education is faced with the legacy of a growth mentality. Through experience and habit, this mentality has been instilled in educators, administrators, and legislators alike. In turn, it has been embodied in the procedures and mechanisms they utilize to determine levels of support for state colleges and universities.

Fundamental changes have come to the budgetary tradition upheld by these assumptions. Higher-education institutions and state governments are both still struggling to make fiscal sense of their new situation. Changing enrollment patterns are among the most important of the new realities facing higher education. A new generation of students has entered the academy. Their numbers have declined, their demands have shifted, and their characteristics have changed. Most readers know these facts sufficiently well that the entire litany need not be repeated. The point most important for us to recall is that growth in student enrollments has ceased at many institutions and is exhibiting actual, even substantial, decline in some. In those cases where the actual number of students served has not declined, a greater proportion are attending part-time rather than full-time. In short, the engine that has driven much of the resource-allocation process for more than 20 years has slipped into neutral and, on occasion, even into reverse.

The effect of declining enrollments on state allocations has been both substantial and widespread. In many instances, decline in enrollments has exceeded the rate at which formula coefficients (such as allocations per student) have increased. This has resulted in a net decrease in the level of funds generated through the formula. In the case of incremental approaches, the most palatable argument administrators could offer for a larger increment has disappeared. From a managerial perspective, the absence of growth harbors a further problem: the elimination of discretionary resources generated by the difference between average and marginal costs. The economic margin of safety is being shaved finer and finer. For most states and educational institutions, the change is not a short-term aberration. With declining enrollments being the new, relatively long-term norm, riding out the storm is no longer a viable option.

A second major perturbation affecting the resource-allocation process has been inflation. It has sapped the purchasing power of institutions faster than transfusions of funds from the state treasury could replenish it. Not only have prices increased rapidly, some of the largest increases have occurred in such peripheral areas as utility costs. As a result, faculty salaries have not kept pace. This has endangered the most important of higher education's critical resources. Many of the gains made in this area in the early 1970s have been lost. Neither formula factors nor inflation allowances in incremental budgets has been sufficiently large to allow institutions to maintain, let alone enhance, faculty quality and, in turn, educational effectiveness.

Experience in recent years suggests, however, that rampant inflation is not necessarily permanent. Its destructive force has been blunted, at least temporarily. Nevertheless, the timing of this major inflationary binge exacerbated enrollment-related problems. If nothing else, our recent experience with long-term inflation and the inability of states to compensate for it dispelled any notion that inflation was potentially a good thing. In the short run it served as a convenient excuse to boost formula coefficients and expand the base. Nevertheless, increases in revenue could not keep abreast with expenditures. In time it became clear that inflation made everyone a loser.

The third and perhaps most severe shock to the budgetary system has come as a result of general economic decline in many states. The capacity of states to fund programs and provide services at customary levels has been severely curtailed. State revenues have not expanded at a pace equivalent to the rate of inflation. Consequently, the purchasing power of states, like that of institutions, has diminished. This has worked a particular hardship on higher education. Unlike other major recipients of state funds, state colleges and universities are not protected by statutes that prescribe allocation levels. For example, primary and secondary schools in many states have aid formulas embodied in statute. To change the funding rate (the allocation per student), the law must be changed. Amending legislation of this kind is always harder than changing a line in a major appropriations bill, the only place where higher-education funding is typically specified. In truth, higher-education is often the major element of the discretionary or controllable portion of a state's budget. Because so many other components are not controllable, such as pension payments, welfare, and elementary and secondary schools, an inordinate burden falls on higher education during hard times.

With many states experiencing revenue constraints, institutions have found growth to have become a substantial burden. A generation ago, incentives were provided to increase enrollments and thereby increase revenues. Such a strategy, however, can now easily work to an institution's disadvantage. Quite simply, if a state does not have the dollars, it cannot distribute them. The argument that more students require a larger subsidy carries little weight in the face of these obvious constraints. Under such circumstances, growth not only results in no additional funding, it spreads previous allocations over a larger number of students.

If these shortfalls are not compensated for, inadequate faculty salaries, larger classes, reduced library acquisitions, and poorly maintained equipment and facilities are among the many "efficiencies" forced upon state institutions. In turn, these measures are translated into diminished values for formula coefficients or into depressed base levels from which increments are determined. Limited revenue is often judged to be a short-term problem. However, in the manner we have just described, these constraints can become embedded in various mechanisms and procedures for resource allocation. The consequences can be both long-term and widespread.

Faced with these new realities, institutions and state governments alike have found little remedy in habitual or customary responses. The clear and pressing need for innovative approaches to resource allocation has prompted some states to undertake creative initiatives. Some of these measures apply to the multipurpose component of the budget; others are directed at special purposes. Some leave state purposes intact but change the procedures or algorithms for determining allocations. For example, some states are considering a shift from average to marginal cost as a basis for calculating the core budget. Other approaches reflect a change in purpose that may lead, for example, to the addition or deletion of special-purpose components. Still other approaches may shift the balance between general-purpose and special-purpose components. As will become evident, these efforts succeed where they adhere to sound budgetary practice, reflect close links between planning and accountability, and embody clearly articulated state purposes.

The Multipurpose Component

Initial Reactions to Change

When state appropriations to higher education must be severely curtailed, government and institutional administrators focus their immediate attention on the multipurpose component. The size of this component is the most obvious but perhaps not the most important reason. More to the point is that programs and activities funded through special-purpose allocations usually have clearly defined and politically active constituencies. For this reason, single-purpose components are difficult to attack. On the other hand, the constituencies for the multipurpose component are more diverse. The focus of their interest is diffuse, and they tend not to become politically mobilized.

This downward pressure on the funding base can quickly be carried to an extreme. Institutions may find it impossible to achieve simultaneously the many state priorities they are expected to meet or have historically met. Schools can accommodate funding restrictions to some degree by improving institutional productivity or efficiency. This depends, however, on the degree of organizational slack present at the outset. Once this available slack has been wrung out of the system, however, all concerned must realize that certain objectives and priorities cannot be accomplished with the resources available. In the absence of increased funding, levels of expectation may have to be reduced in a variety of areas. For example, certain manpower requirements or priorities may have to be scaled down.

Enrollment limits may be necessary on certain programs, such as engineering, to keep demand for the program within the bounds of an institution's ability to service that demand.

A state may even conclude that its objectives of institutional viability, quality, and access are no longer congruent. If so, there remain alternatives. When faced with this reality, Tennessee consciously decided to spread its available resources among fewer students. It resolved to forego the objectives of student access and choice to maintain the viability and quality of its programs and institutions. Few states, however, take this particular course. They generally prefer to maintain the access objective and not expend resources on improving, renewing, and sustaining institutional resources.

When changes to the multipurpose allocation become necessary, the first reaction, then, is typically to adjust whatever approach is being used in order to make the answers come out right. Rather than implement fundamental changes, states generally make minor alterations to current budgetary practice. Across-the-board reductions may be instituted. If formulas are employed, institutions are funded at some percentage of the formula.

If the relationship between the state and its educational institutions reflects the state-agency model, reductions may be instituted at a more operational level. These can include hiring and salary freezes, limitations on the use of consultants, restrictions on out-of-state travel, and deferred maintenance of the physical plant. Other reductions can significantly affect an institution's educational effectiveness. Faculty salaries may not be increased at a pace sufficient to keep them competitive. Likewise, staffing patterns can fall into disarray, with vacated positions terminated and needed additions to faculty postponed or foregone completely. Expenditures on books and periodicals are often reduced disproportionately.

Unfortunately, the decision to curtail investment in an institution's critical resources is usually made by default. Because investing in the future does not elicit vocal constituent support, institutions bow to more immediate pressures. When legislators and administrators lack the determination to find alternative and creative approaches, reducing long-term investment in critical resources emerges as the path of least resistance. Its danger lies in its very convenience. Reductions that are the easiest to make are the ones that leave the institution least able to carry out its mission or to alter or sharpen its long-term goals.

If changes in the environment are temporary, any number of cost-cutting measures may be appropriate. After all, short-term aberrations in enrollments and revenues do occur. However, if there are fundamental changes in key budgetary factors, then these "adjustments" should be viewed as stop-gap solutions, a means for coping while longer-term solutions are sought. Many states, however, misuse these convenient emergency measures for extended periods of time. Washington and Oregon, for example, both reduced support for their institutions to the point where at one time they were funded at about 70 percent of the formula. This depressed level of funding reflects a significant shift in underlying conditions without an accompanying shift in state purposes and expectations or in budgetary philosophy and funding mechanisms.

Sometimes compromises must be struck that balance expectations and means. Although uninviting, one approach involves limiting demand for educational services. Among the alternatives suggested by William Pickens (forthcoming) are the following:

1. Raising admissions requirements for public postsecondary institutions, thereby reducing the pool of eligible participants.
2. Ruling certain programs as ineligible for state subsidy, thereby excluding nondegree credit hours from the calculation base. This, in essence, declares an area of instruction to be no longer a state priority.
3. Changing or reducing the mission and quality of state institutions.

Longer-term solutions may be more difficult to achieve, but are likely to be far more rewarding. Although often avoided, one obvious solution is to establish new relationships between institutional work loads and levels of funding.

The close relationship between teaching loads and state appropriations has a long history. Whether a state uses formula or incremental methods for determining multipurpose funding, increased teaching loads brought on by larger enrollments have always been a major rationale for seeking and obtaining increased state support. As noted earlier, this lends primacy to the access objective. Moreover, this assumes that if access is funded, other objectives supported by multipurpose funding will be accomplished through activities that will result in joint supply.

The direct link between teaching loads and funding has been constructed around the economic concept of average cost. In situations where enrollments and teaching loads continued to grow, this average-cost relationship resulted in a budget request that went increasingly beyond the means of the state. In those cases where enrollments stabilized or declined, the assumptions failed in a different way. State funding that proceeded on the basis of the access objective proved insufficient with regard to other objectives. In particular, institutional quality and even viability are not necessarily accomplished through joint supply when instructional funding stabilizes or declines.

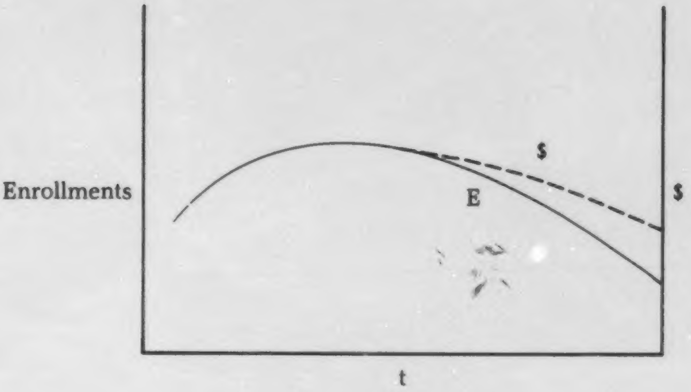
As a result of these difficulties, many states have been forced to reexamine fundamental premises. Several are taking steps to disengage funding levels from strict linear dependence on enrollments. These approaches differ in the degree of change they propose, their conceptual framework, their level of sophistication, and the degree to which they explicitly recognize state priorities other than student access.

Buffering and Decoupling

One option exercised by many states is to place constraints on traditional approaches instead of exploring alternatives that break significantly with the past. This has the effect of loosening, not dissolving, the tie between enrollment levels and allocations. Allen (1980) and others have labeled this approach as a "buffering" arrangement. It serves to insulate state allocations from the vagaries of enrollment shifts. In circumstances where enrollments are declining,

FIGURE 7

State Allocations Linked to a Multiyear Average of Enrollments

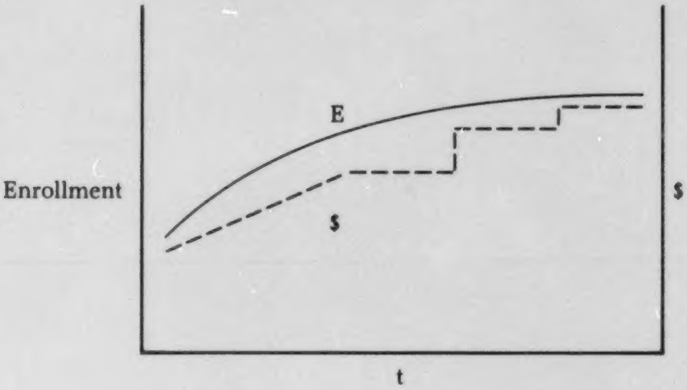


some states, such as Minnesota and Kentucky, have used a multiyear average of enrollments to calculate funding levels. This builds a lag into the funding decline, thereby preventing allocations from dropping as fast as they would otherwise (see figure 7). Administrators are allowed time to adjust to the inevitable. In no way, however, does this change the fundamental approach to funding. It does not provide a safety net for the institution nor does it broaden the array of state objectives considered in the funding process.

Other states have implemented a variation on this approach, whereby funding levels can decline only a predetermined maximum per year. This policy holds even if declines in enrollment are precipitous and would have resulted in larger funding cuts under customary calculation procedures. Tennessee, for example, employs a corridor or threshold approach. As Paul Brinkman explains, "Any enrollment change that is no larger than plus or minus 2 percent elicits no change at all in funding; and 2 percent is subtracted from any larger change before the funding request is made (for example, a 6 percent change is treated as if it were only

FIGURE 8

Funding Ceilings During Periods of Enrollment Growth



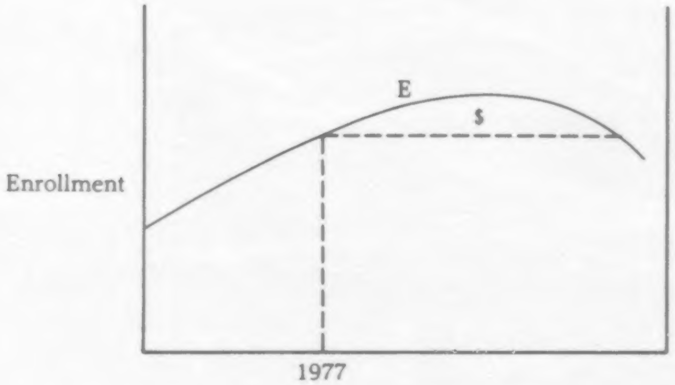
4 percent). In Florida, the amount that the funding level may change in any given year is restricted to a certain range irrespective of what happens to enrollment" (1984, p. 30). We should note that this approach has the effect of buying time but does not fundamentally change the concepts on which funding mechanisms are based.

Under circumstances of enrollment growth, states may wish to impose ceilings and thereby limit their funding liability. For example, states that face constitutional or statutory limits on their expenditures can determine that allocations to higher education may not exceed a certain limit, even if enrollments expand. This has the effect of controlling the portion that higher education receives from the state pie. (See figure 8.)

Aware that enrollment declines were forecast for the 1980s and 1990s, Minnesota implemented an "enrollment bulge policy" in 1977. Under this arrangement, the state funds its enrollments at the 1977 level and does not provide funding for enrollments that exceed that level. By not funding growth, the state reasons that it will not be necessary

FIGURE 9

Minnesota's Enrollment Bulge Policy



to make such drastic cuts when decline occurs (see figure 9). This approach, however, will not mitigate the impact of decline should enrollments fall below 1977 levels. Presumably, an alternative tactic would have to be invoked at that time. Nevertheless, Minnesota's initiative is significant. It is one of a handful of states taking preventive steps and pursuing a proactive rather than merely reactive financial policy.

Decoupling represents a somewhat different way of insulating funding levels from enrollment changes. While buffering serves to loosen the immediate connection between enrollments and funding, decoupling seeks to limit the amount of an institution's allocation that is governed by enrollment. This is accomplished by altering the structure of the formula or other resource-allocation guidelines so that a relatively smaller proportion of funding is driven by enrollment-related factors. For example, library funding can be determined by the number of programs supported rather than by the number of students served. Likewise, maintenance and operation of the physical plant can be related to campus size rather than student population. In other words, decoupling affords institutions the opportunity to support centralized services in a way that is not directly affected by yearly enrollment fluctuations. However, such arrangements make formula guidelines more complex and can push governance relationships toward the state-agency model.

Although they differ in particulars, buffering and decoupling are both designed to limit state expenditures and control the effects of enrollment change. They do little, if anything, to reflect state purposes other than balancing the budget. As a result, they are at best short-term devices. They represent rational ways of making adjustments to old approaches, not fundamentally new initiatives attuned to changing demographic and economic realities.

Marginal Costing

A second way of responding to the new realities facing higher-education finance leaves philosophic approaches intact but employs a fundamentally different set of economic concepts. Funding remains tied to enrollment levels. As a philosophic or policy objective, access continues to dominate all other priorities. As before, the state expects to accomplish its other purposes within the funding levels established in support of access. However, the economic concept utilized in this approach is the marginal-cost method rather than the historically popular average-cost method. According to the average-cost method, additional students will each cost the institution an additional "average" amount to educate. By utilizing marginal-cost concepts, the state or institution considers the "extra" costs associated with adding an "extra" student (or the increment of cost savings associated with decreasing the student body by one).

Conventional wisdom holds that educational institutions do have some economies of scale. As institutions grow, the marginal cost tends to be less than the average cost historically used to calculate resource allocations. Now that enrollments are in decline, many educators and administrators are questioning the appropriateness of average-cost appropriations. As they enroll fewer students, institutions will find that the actual, marginal savings will be lower than the estimated savings calculated on the basis of average costs. As states reduce funding at an average-cost rate, these institutions may experience financial stress.

Based on a variety of simulations, Monical and Schoenecker (1980, p. 79) have found that:

1. Marginal-costing formulas are sensitive to enrollment changes, but not as sensitive as linear funding formulas.
2. Under all marginal simulations, fewer resources will be added and fewer reduced than with linear funding. As enrollment increases, resources will be added at a marginal rate. As enrollment decreases, they will be withdrawn at a marginal rate. The net effect is to "flatten" the resource-requirement curve during a period of enrollment fluctuation.
3. With respect to the base year, marginal funding will bring in more total dollars and lower dollars per student in periods of enrollment growth, and fewer total dollars and higher dollars per student in periods of enrollment decline. There can be an overall lowering of appropriations, even though the appropriations per student will be undergoing a "real" increase over the base.

On a conceptual level, marginal costing is a sounder approach because it replicates more closely the actual cost behavior of institutions. Practically speaking, marginal costing has desirable characteristics given economic and demographic conditions in many states. When enrollments increase, requirements for state funds go up less than they would otherwise; when enrollments decrease, appropriations are decreased to a lesser degree. It is this latter characteristic that is particularly attractive to educational administrators. Under this arrangement, when enrollments decline, funding is less likely to decrease to a point that threatens institutional quality or viability. As Richard Allen and Paul Brinkman point out: "Funding and pricing schemes based on marginal-costing principles can directly address the weakness of techniques that are based on average costs. By focusing directly on the cost implications of changing enrollment levels, marginal costing allows the state or federal government and the institution to base their actions on estimates of actual cost behavior rather than on a static calculation of costs at a particular enrollment level that is no longer applicable" (1983, p. 4).

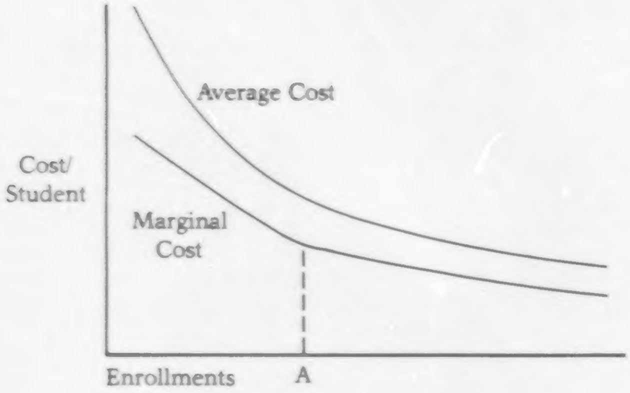
In spite of several attractive features, marginal-costing techniques have not been widely introduced into the resource-allocation process. Only a few states have adopted this approach in any formal sense. Several problems, both technical and political, stand in the way of broader implementation. First, marginal costs are difficult to calculate (Allen and Brinkman 1983). Of the various means available to calculate marginal costs, only the statistical method is really feasible. This approach requires data from a large number of institutions and yields a cost curve for a *set* of institutions rather than for individual schools. Since marginal costs for numerous individual institutions have not been calculated, a body of conventional wisdom has yet to emerge about reasonable and realistic marginal costs for different kinds of institutions at different enrollment levels. Further complications exist because higher education lacks a known or standard set of production relationships.

As an aside, we might note that research by Paul Brinkman (1981) and J. Michael Mullen (1981) indicates that marginal-cost curves for colleges and universities do not follow the U-shaped curve predicted by theory. In particular, they have found that marginal-cost curves are essentially flat over a wide enrollment range after decreasing as expected at the low end of student enrollments (see figure 10). The break point (A) has been found to vary by type of institution. Once past, however, marginal and average costs appear essentially the same over an enrollment range applicable to many institutions. As an explanation, researchers suggest that economies of scale are overcome at most institutions by diseconomies of complexity (G.W. McLaughlin, J.R. Montgomery, A.W. Smith, and L.W. Broomall 1980).

There are also political problems associated with marginal costing. The approach is not only complicated and subject to potential errors, it also presents information in a manner unfamiliar to many legislators and administrators.

FIGURE 10

Marginal-Cost Curve Over a Wide Range of Enrollments



Legislators in particular have bought the concept of average cost, one that perhaps has been oversold to them for many years. They are well aware that average costs rise more quickly than marginal costs when enrollments are increasing and that marginal costs decrease more slowly than average costs when enrollments are down. Hence, they express skepticism, if not cynicism, about shifting to marginal costs at just the time it serves institutional interests. Moreover, past practice has led legislators to expect comparative average-cost data for each institution. The methodological problems associated with calculating marginal costs make it extremely difficult to maintain this tradition and provide comparative data for various state institutions. At the very least, it will take time to establish a level of face validity for marginal costing corresponding to that still enjoyed by average-cost approaches.

Marginal costing is a relatively new approach to resource allocation in higher education. Empirical data about the actual behavior of marginal-cost curves in individual institutions remains scarce. For these reasons, the approach taken by Indiana in developing their allocation factors seems most reasonable. Indiana remained faithful to the concept of marginal costing, but determined which factors should be applied not through empirical analysis but through consensus and negotiation. In essence, they negotiated a new funding contract between institutions and the state. The factors utilized by Indiana in their marginal-costing approach are presented in the appendix to this volume. Only time will allow a practical assessment of the strengths and weaknesses of the Indiana experiment.

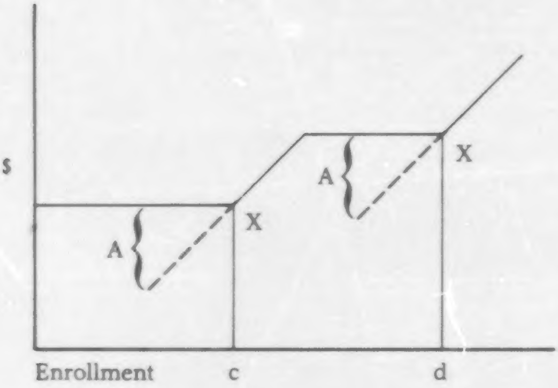
Fixed and Variable Costs

A third way of responding to changing economic and demographic conditions involves a new philosophic stance regarding both state objectives and the economic concepts used to determine allocation levels. This third approach no longer adheres to the assumption that if the access objective can be funded, other purposes can be accomplished through joint production. Rather, it explicitly builds one further objective into the allocation scheme: maintaining institutional quality and viability. In other words, it recognizes the necessity of developing and maintaining a core institutional capacity to deliver services in accordance with the school's mission. The traditional objective of public access to higher education can be achieved jointly up to a certain point. Beyond this point, however, the access objective has to be funded in addition to allocations directed toward institutional capacity. In short, this approach establishes, as an equal if not predominant concern, the investment aspects of state responsibility to public higher education.

The economic concept underlying this approach is that of fixed and variable costs. Figure 11 illustrates some of the important ideas associated with this approach. The plateaus indicate the core costs of operating the institution under two different scales of operation or potentially different institutional missions. The areas marked "A" represent the additional costs necessary to maintain investment in the institution over and above what would have been calculated on a purely enrollment-driven basis. The usefulness of fixed and variable costs follows from several propositions. First,

FIGURE 11

Fixed and Variable Costs



there are certain institutional capacities that must be put in place if one is to have an institution. Among these capacities are a critical mass of faculty, an administrative core, and a certain minimum complement of academic and student support functions. Second, this core component can differ depending on the mission of the institution. A broader institutional mission requires a larger core capacity.

Once the core capacity (the fixed cost) of the institution is put in place, enrollments can expand to the point where the average fixed cost per student equals the average total cost per student. This point is marked "X" in figure 11. Once enrollments expand beyond "X," costs escalate at a rate dependent on enrollment levels. These can be calculated on the basis of either average or marginal costs.

This approach requires that the question of institutional viability and mission be addressed head on. When enrollments decline into the region designated "d," administrators and legislators will have to decide whether to change an institution's scale or mission. If enrollments decline further into the region labeled "c," they must address the continued survival of that institution. If the school is to remain open, fixed costs must be met, even though the average cost per student (the traditional relative measure) will be higher than at similar institutions.

States and institutions alike have little experience in using fixed and variable costs as a method for calculating allocations. Wisconsin developed a fixed- and variable-cost approach but did not implement it. Minnesota has adopted the approach in those instances where enrollments have fallen below the point where the critical mass of faculty and programs could be sustained using purely enrollment-driven approaches. Because of this insufficient track record, it is difficult to forge anything like a consensus regarding what should be included as fixed costs for different sizes and types of institutions and what can appropriately be considered a variable cost. Because discussion and experimentation continue, it is too early to offer prescriptions or even draw definite conclusions.

Given this state of affairs, the approach proposed in Wisconsin seems sensible. The state integrated the concept of fixed and variable costs into their budgetary system in a more-or-less empirical fashion. They applied a set of guidelines and conventions to state institutions as they were currently operating. They did not step back to reassess or restate missions for each of the state's institutions and thereby establish a level of core funding appropriate to each school. Rather, Wisconsin made the understandable, if somewhat misguided, assumption that institutions were currently operating in accordance with desirable missions. The state saw its task as ascertaining what portion of current institutional operations should be declared as fixed costs and what should be considered variable.

Wisconsin's experiment with fixed and variable costs is significant because it explicitly recognizes the state's responsibility to fund the "critical mass" required for institutions to perform their missions. Moreover, it recognizes that institutions with different missions have different needs. Purists might argue that Wisconsin's inductive approach takes too much on faith. Current offerings do not necessarily reflect an institution's appropriate or desirable mission. Pragmatists can legitimately answer those arguments by noting that this was the only approach likely to work. Changing funding arrangements is traumatic enough without compounding inherent problems by simultaneously reassessing and changing institutional missions. Florida is one among several states entertaining the idea of using a deductive approach to institutional design and resource allocation. To date, however, none of these efforts have come to fruition.

Although problems persist in implementing budgetary approaches that utilize the concept of fixed and variable costs, this course of action is perhaps the most conceptually sound of the three we have discussed. It encourages states to consider resource allocation in terms of institutional quality and viability, not merely operation. In so doing, it explicitly recognizes key state priorities in the field of higher education while simultaneously allowing institutions greater control over day-to-day operations.

The Special-Purpose Component

Initial Reactions to Change

Curtailed state appropriations to higher education can affect special-purpose funding in several ways. States may relegate categorical funding to a lower priority or eliminate altogether certain special-purpose programs. Reducing the level of service provided through such programs represents a less drastic step. Because special-purpose programs tend to attract politically active supporters, such reductions may be somewhat more difficult to institute than those in the multipurpose component. Nevertheless, they are a frequent response to financial hard times or to changed circumstances or priorities.

At the other extreme, states often add special-purpose programs in periods of financial pressure and rapid change to compensate for reductions in multipurpose funding. In other words, as the core is reduced, priorities shift to the single-purpose component. This shift can have economic advantages to the state and can also serve to differentiate institutional missions. By shifting funds from the multipurpose component at all state institutions to single-purpose funding at a few institutions, the state can accomplish tactical change while also saving money.

Downward pressure on the multipurpose component can rapidly lead to conditions in which institutional resources suffer badly. In response, some states have taken steps through special-purpose allocations to address the most critical problems. Nevertheless, this tactic puts back into special-purpose allocations only a small portion of that squeezed out of the multipurpose component. For this reason, the use of special-purpose funding during periods of financial exigency is best viewed as an emergency measure rather than as a wise long-term strategy.

Even in times of stability and growth, the balance between multipurpose and special-purpose funding involves important decisions and can become a major negotiating point. State government and postsecondary institutions can each have excellent reasons for increasing or decreasing the level of special-purpose funding. As a tactic to obtain an overall higher level of funding, institutions may seek to move programs out of the base and into special-purpose categories. State government may initiate or endorse precisely the same move for very different reasons. Such a shift, for example, allows the state increased accountability and control over larger portions of an institution's budget. On the other hand, both parties may argue that fewer items should be included in the special-purpose category. The state's purpose in doing so would be to hold down appropriations; the institutional rationale would be to limit the degree and extent of in-depth control and accountability.

In responding to changing demographic, economic, and political conditions, many states have placed greater importance on single-purpose approaches for achieving key state purposes. In many respects this is laudable. State purposes and priorities are entering into the budgeting process in a manner not accomplished through multipurpose allocations. Some special-purpose approaches are new; others are not radically innovative but have assumed renewed significance in a period of severely constrained resources. Recalling table 1 in chapter 2, we note that key state objectives include the provision of educational opportunity, the achievement of particular student outcomes, the configuration and quality of programs and institutional resources, and contributions to specific constituents. Because the multipurpose component of the budget typically provides for educational opportunity, our discussion of recent or innovative special-purpose approaches will focus on the other three objectives.

Student Outcomes

In recent years, demands for documenting the value of higher education have come from all sides. Legislators, administrators, faculty, and students increasingly ask for ways to measure and improve educational effectiveness. Many states are interested in lending additional support to those institutions that can demonstrate excellent or improved student outcomes.

Tennessee's program for performance funding has elicited considerable interest. The state recently devised a special-purpose formula to provide funds based on improvements in the quality of instructional programs and in student outcomes. This formula allows institutions to receive up to 5 percent of their core funding based on their performance on five dimensions. The state can award up to 20 points in each of the following five areas:

1. Proportion of eligible academic programs accredited
2. Performance of graduates on a measure of specialized or major-field outcomes
3. Performance of graduates on a measure of general-education outcomes
4. Evaluation of institutional programs and services by enrolled students, recent alumni, community, and employers
5. Peer evaluation of academic programs

Tennessee's performance-funding initiative illustrates how a state can directly link objectives and accountability with resource allocation. Funding mechanisms can be devised that promote state priorities in education without transforming colleges and universities into state agencies and without violating the integrity of an institution's educational mission. Moreover, these performance-funding formulas operate at a level of generality sufficient for joint production to continue. In other words, the state's objectives do not preclude other funders from pursuing their own interests.

Specific student outcomes can also be prompted through state incentives for certification. A widely used mechanism is the capitation grant, which funds institutions in stated amounts for each degree granted in a particular field. This approach has the advantage of being easily audited and adapted to a wide variety of needs and circumstances. Some capitation grant arrangements reward institutional contributions to the general level of education among state residents, by allocating funds on the basis of all degrees granted. Other arrangements reward certification or degrees granted in certain occupational fields. States can also reward institutions that maintain or improve desirable student characteristics. Capitation grants, for example, can encourage recruitment, retention, and graduation of students having specific ethnic or socioeconomic backgrounds.

Configuration and Quality of Programs and Resources

Primary funding for instructional and related support activities should be accomplished through the multipurpose component. Nevertheless, states may wish to promote certain objectives through categorical funding. Maintaining or enhancing research capacity at state institutions is one example. Under many traditional formulas, four-year institutions are allotted research funds based on a flat (and admittedly small) percentage of instructional funding generated through the formula. This has the effect of spreading research funds among all institutions, largely in proportion to teaching loads. In essence, this reinforces the notion that all public four-year institutions have a research mission. The major state university is on an equal footing with comprehensive institutions only recently emerged from teachers colleges. Any advantage accruing to a major university is largely a function of institutional size.

Tennessee has developed a new method of funding research that runs counter to this traditional approach. The state's allocation for academic research is determined by an institution's success in acquiring research support from other sources. An institution receives state research funds in direct proportion to its share of nonstate research funds acquired by all institutions in the state. Under this arrangement, already well established research institutions are able to reinforce their missions in a way that does not require research funds to flow to institutions that do not have a demonstrated research capacity.

The funding mechanism developed by Tennessee has applications in areas other than research. For example, states may wish to use this approach when maintaining or enhancing an institution's capacity to engage in public service. The more service an institution provides with funds from other sources (including participant fees), the greater the support provided by the state.

Special-purpose allocations can also promote institutional selectivity and student quality. Funding mechanisms can be devised that reward institutions for attracting a greater number or proportion of students above (or not below) a stated measure of academic preparedness. For example, a state may wish to provide additional funds according to the number or proportion of merit scholars attending an institution. Alternatively, it can award a flat dollar amount for each percentage decrease in the number of students enrolled that enter with test scores below a certain level or who fall below a certain percentile in class standing. We might note that some of these objectives are accomplished by fiat when states mandate admission requirements for certain institutions.

Many states have used special-purpose allocations to address critical faculty shortages. This approach allows for special salary increases to faculty members in such disciplines as engineering and computer science, in which disparities between university and private-sector salary scales are greatest. An alternative is to fund additional faculty support or special endowed chairs on a shared basis, with other funders identified and committed by the individual institution.

During periods of enrollment decline, support for library services and resources may prove entirely inadequate. To remedy this situation, some states have loosened or eliminated the link between library funding and enrollments, preferring instead to base library allocations on the size and diversity of academic programs. In certain instances even this approach may prove insufficient. If a state places high priority on creating exceptional library resources or making up for identified deficiencies, it may wish to allocate funds on the basis of the relative distance from an agreed upon standard of excellence.

Hard times also take their toll on equipment and facilities. As in the case of library services, states may wish to decouple the maintenance and acquisition of equipment and facilities from enrollment-driven factors. One solution is to allocate funds in proportion to the calculated amount of depreciation on capital equipment and facilities. Another option is to provide funds in proportion to the amount required to replace depreciated equipment and facilities.

Contributions to Specific Constituents

Although state government is certainly the major funder of public postsecondary education, other constituents not only exist but have important interests and valid expectations. States generally respond to these constituent groups through special-purpose programs. In developing these programs, the state must ensure that they meet its own needs and priorities while also serving these constituent groups. Because the needs of specific constituents can vary greatly from state to state, and even between different regions of the same state, this kind of special-purpose funding needs to be tailored to specific circumstances. The needs and expectations of local business and industry, for example, can be met through capitation grants that provide incentives for training and human-resource development in certain occupational fields. Likewise, specific disciplines closely tied to public service or state economic activity, such as public health or engineering, can be promoted through special-purpose allocations. Categorical funding enables the state to support worthy programs without proliferating or duplicating them throughout the state system and without institutionalizing them for an indefinite period.

Special-purpose funding remains an excellent way of serving special populations within the state and specific constituents of state colleges and universities. The potential danger of this approach, however, is that it will direct state funds to specific sore points and priorities, while neglecting broad discussion of and attention to core funding of higher education. Special-purpose allocations remain a supplement, not a substitute, for broad state commitment to its colleges and universities. If states are to respond adequately, even creatively, to the new realities of the 1980s, they must express this commitment through both components of the budget in ways that are not only appropriate but innovative.

5

Budgeting and Educational Policy: Conclusions and Recommendations

Without adequate designs and blueprints, few buildings can be successfully constructed or sensibly utilized. Likewise, budgeting's end remains consequent upon its beginning, its final results upon first intentions. The effectiveness or ineffectiveness of state funding can be traced to these initial and often unexamined assumptions. This book has probed these assumptions and evaluated them in light of basic concepts and principles. Consistent application of these concepts and principles can make state funding an effective vehicle for, not an obstacle to, sound educational policy.

The changed circumstances of American higher education require that we reassess customary approaches to state funding of colleges and universities. Institutional executives and state legislators are quite aware that change is both necessary and desirable. Good intentions are not lacking. Each year both parties seek to have state budgets respond to new circumstances in postsecondary education. Intent upon changing results, they forget, however, to change the instruments and the attitudes upon which these results depend. All too often, budgets remain relics of an earlier generation; attitudes about resource allocation reflect goals no longer consonant with reality. If change is to be meaningful and effective, we must start with questions, not with answers or a feverish attempt to find them. An effective response to the new educational realities of the 1980s lies in the reasoned answers elicited by such questions.

It has not been our aim to present "right answers" about state-level funding. The complexity and diversity of American higher education would make any such attempt fruitless. Rather, we have sought to articulate issues, clarify principles, and describe alternatives. Four topics have been central to our discussion. In this concluding chapter, it is appropriate that we remind ourselves of these issues, review the conclusions we have reached, and offer recommendations on budgeting and finance that will help ensure the future of public postsecondary education.

Policy and Procedure

Budgeting has always served as a means to an end. Few will argue that its proper role is to function as a vehicle for addressing educational issues and achieving educational outcomes. However, when goals and issues remain unspecified or vague, budgetary procedures can easily supplant the policies they are designed to further. It is an unfortunate axiom of management that the short term drives out the long term unless particular pains are taken to maintain a balance. The customary inability of budgetary schemes to adequately reflect policy objectives only exacerbates this situation. Because they are more readily stated in financial terms, short-term operational objectives can easily supplant long-term strategic objectives that rarely find adequate expression. By keeping strategic goals in mind, state government and educational institutions can guarantee that budgeting will become an effective instrument for policy, not its surrogate.

The important distinction between procedure and policy raises a further issue: the possibly competing demands between state policy and institutional policy. Clearly, both bodies have policy prerogatives and an appropriate sphere within which to pursue policy objectives. Both have an important and complementary role. More dangerous than competing policies, however, is the lack of policy, particularly at the state level. When states do not articulate and pursue clear policy objectives, budgetary procedures can take the upper hand. These restrictive procedures can then easily inhibit institutional policy. This is why this book takes the state perspective and advocates that state funding clearly represent state policy. States must ensure that institutions can pursue policy objectives without the constraints and confusion induced by state budgetary procedures produced without sufficient forethought and perpetuated without sufficient evaluation. Clearly, budgetary procedures should not arbitrate program change or determine educational policy. On the other hand, we cannot afford to have budgetary mechanisms insulated from policy discussion. It is far better for budgets to reflect and promote policy decisions than to obscure intentions and goals.

Planning and Accountability

The most effective and appropriate way to ensure that budgetary procedures will promote policy decisions is to broaden our understanding of the budget process. If a budget is to span effectively the distance between intentions and actions, both planning and accountability should become essential components. Whether by design or by default, budgets do signal priorities and preferences. The challenge facing institutional managers, legislators, and state-agency officials is to ensure that budgetary arrangements are consistent with intended objectives.

State funding of public postsecondary education requires not only foresight but retrospective analysis. Accountability should be linked directly to planned objectives. Moreover, those responsible for designing and implementing budgetary procedures should ensure that frameworks for accountability are integrated into the funding process.

By adhering to sound budgeting principles, state-level resource allocation can maximize, not inhibit, possibilities for joint production. This in turn will enable public institutions to become more responsive to all of their constituents and ensure a more diversified and secure funding base.

Budgetary Design and Structure

Throughout this volume we have described state allocations as having multipurpose and single-purpose components. The multipurpose component supports basic institutional and instructional activities. When assessing approaches to multipurpose funding, institutional managers and state administrators should ensure that budgetary mechanisms will promote multiple outcomes while at the same time providing adequate frameworks for accountability. Customary approaches to multipurpose funding rarely incorporate accountability mechanisms for state purposes other than access. Care must be taken, therefore, to ensure that priorities are clear and that mechanisms for assessing their achievement are created in parallel with the budget process. Care must also be taken,however, to ensure that these additional steps promoting accountability focus on ends, not means, and do not inhibit an institution's capability to take advantage of existing or potential joint-supply conditions. Moreover, state government should acknowledge its responsibility to develop and maintain institutional assets and should design multipurpose funding with this goal in mind. In this respect, approaches to core funding that recognize fixed and variable costs are likely to prove particularly effective and beneficial.

Special-purpose funding is ideally suited for supporting programs and functions that are unique to individual campuses, differentiating institutional missions, and achieving specific, often short-term, educational objectives. However, states would be ill advised to use this approach as a way of sidestepping restrictions on multipurpose funding or silencing debate on state support of broad educational priorities. Nevertheless, special-purpose funding can effectively address specific needs and circumstances.

Although it is convenient to distinguish between various funding approaches, we have argued throughout this book that many are fundamentally similar. For example, formula and incremental approaches incorporate the same basic variables and presume similar state objectives. Hence, budgetary format is not the important issue. It is far more crucial for states to ascertain and articulate their educational objectives.

Changed circumstances in higher education are giving states an opportunity to investigate objectives other than access, such as maintaining and enhancing the viability and quality of institutional assets. Because budgetary mechanisms are a means to accomplish an end, states should review not only how they fund public institutions but also the reasons for their support and the results of their efforts.

Governance

The new educational realities of the 1980s affect not only the mechanics of resource allocation but also fundamental relationships between public institutions and state government. Conditions of decline and financial exigency have often encouraged states to move existing relationships toward the state-agency model. Not only do states decrease appropriations, they also attach additional constraints on how these appropriations can be utilized. This emphasizes short-term operational objectives to the detriment of long-term strategic planning. It also shifts responsibility away from the institution and toward state government. Institutional managers have fewer options and are less able to pursue possibilities for joint production. Unable to organize programs and deploy resources as they should, institutional managers are less able to serve the needs of various constituents that have a stake in public higher education. Under this arrangement, both the institution and the state are losers in the end.

Evidence suggests, however, that the pendulum is starting to swing away from excessive state control. The primary reason is not an altruistic concern for joint production and institutional freedom. Rather, state officials recognize that managing decline is an unpopular political issue. They have every incentive to divest themselves of unpopular responsibilities and return them to institutional decisionmakers. When turning over such responsibilities, they must also relinquish some measure of control. A case in point is the Memorandum of Understanding recently developed between the state of Colorado and its colleges and universities. The memorandum returned to the governing boards and administrators of state institutions such responsibilities as the setting of tuition policies and rates. The agreement also allows institutions to control all funds that do not come from state sources. In short, the memorandum establishes a state-aided form of governance not too distant from the free-market model. Institutions in other states are promoting similar arrangements with their state governments.

Public colleges and universities and state governments alike can benefit from redefining their relationship. Greater freedom in day-to-day operations enables institutions to serve various constituents more adequately and promote effective production relationships. State government benefits from this redefinition because institutions have incentives to diversify and increase their funding base. Moreover, freed from day-to-day operational details, the state can assess and communicate its educational objectives more effectively. Public postsecondary institutions and state governments both benefit from an arrangement that maximizes their operational independence while underscoring their common strategic objectives. This, in turn, enables the resource-allocation process to advance, not obstruct, key educational purposes.

Appendix:

Illustrations of Different Forms of Budget Formulas

An Illustration of Formula Budgeting

The text of this book deals with different budget formulas on a conceptual level. This appendix illustrates several of these alternative forms by drawing on examples of formulas that are being or have been used in various states. Our objective has been to illustrate, not recommend. Some examples illustrate formulas no longer being used in exactly the form described. In one case we draw upon an approach that was recommended and considered but never implemented. To illustrate most of the formula variations identified in the text we first summarize the formula approved for use in Kentucky in 1983 and note its major elements (see table 3). This particular formula was chosen for illustrative purposes because of its comprehensive framework, incorporating both single-purpose and general-purpose components, and because of the variety of calculation approaches embedded within it. We then indicate alternative constructions for one or more major components of such a formula, as employed in other states.

TABLE 3

Summary of Budget Formula for Higher Education State of Kentucky, 1983

PROGRAM AREA	GUIDELINE	COMMENTS
A. Basic Primary Mission Areas: includes support for regular session and summer school instruction *plus* support for academic support and funding to allow institutions to carry out institutional missions	# of SCH (by level and instructional area × $/SCH rates plus (total amount for instruction resulting from previous calculation) × % that varies from 15%-28% for different types of institutions	A typical base × rate approach coupled with a percentage of base factor. The SCH figures used are three-year averages. This seems to "buffer" enrollment shifts. Rates/SCH determined on peer institution basis.
B. Kentucky Residency Program:	# of hours staff × FTE faculty/hours staff × average compensation + academic support and departmental operating expenses (the latter a % of total compensation)	A different approach than used in A above—typically called the "Base factor position ratio with salary rate" method. Notice that policy emphasis shifts to student/faculty ratios and compensation levels.
C. Area Health Education System	# of student weeks (by fields of health instruction) × rate per student week	A straight base × rate calculation
D. Preparatory Education—provides institutions with funds to assist students with academic deficiencies	# of freshmen and sophomores scoring less than 12 on ACT × $/student	A straight base × rate calculation
E. Continuing and Adult Education	The amount calculated for the Basic Primary Mission Areas (less medical or dental) × a % OR $100,000, whichever is greater	A percentage of base factor calculation coupled with a minimum (fixed cost) factor

TABLE 3, *continued*

PROGRAM AREA	GUIDELINES	COMMENTS
F. Hospitals	Institution A—contract amount	An amount specified in a contract for services rendered
	Institution B—support services and direct state support	
	Total budget × % for support services *plus* a direct state appropriation	Base × rate calculation coupled with a categorical appropriation
G. Agriculture Experiment Station	# of Kentucky acres × average state support per acre for peer states	Base × rate calculation
H. Other Research	% × sponsored research plus mandated programs	Percent of base factor coupled with categorical allocations for specific institutes/centers, etc., supported with state funds
I. Other Community Service	Base plus base for specific missions plus mandated programs	A fixed base for maintenance of basic capacity plus categorical funding to support specific programs. The amounts for mandated programs are calculated on an incremental base (i.e., 1.0 × times previous year's allocation)
J. Agriculture Cooperative Extension	# of Kentucky counties × average state support per county for selected peer states	Base × rate calculation
K. Libraries, Museums, and Galleries	Base plus # of SCH in excess of 50,000 times $/SCH (different factors applied to community colleges)	A fixed- plus variable-cost calculation
L. Total Primary Mission Areas	Subtotal components A-K	
M. University Press of Kentucky	Program funded	Categorical funding

TABLE 3, *continued*

PROGRAM AREAS	GUIDELINES	COMMENTS
N. Student Services	Base plus headcount enrollment × rate/headcount enrollment	Fixed + variable calculation
O. Maintenance and Operation of Physical Plant	Sq. ft. × rate/sq. ft. + utilities + acres × rate/acre + rental and lease amounts − indirect cost recovery for space utilized by research	A combination of rate × base, categorical, and contract funding
P. Scholarships and Fellowships	% of tuition revenues + state matching funds required for federal programs (a %) + mandated programs	Rate × base combined with percentage of base factor and a categorical component, the latter determined on an incremental basis
Q. Institutional Support	% of all previous components with the exception of F, Hospitals	% of base-factor calculation
R. Educational and General Debt Service	Total mandatory transfer less dedicated revenue, interest earnings, and federal subsidies	
S. Unfunded Retirement	Program funded	
T. Less: Investment Income	% of tuition × established interest rate	Base × rate calculation
U. Less: Tuition Income	# of students × tuition rate (corrected for reciprocity agreement, etc.)	
V. Less: State Funded Retirement	Program funded	Categorical
W. Total State Support of E&G Operations	Total − lines L-V	

SOURCE: Kentucky Council on Higher Education, *1984/86 Budget Request Guidelines* (Frankfort, Ky: Kentucky Council on Higher Education, 1983): p. 43.

Variations on the Theme

The Kentucky formula described in table 3 represents an average-cost approach, particularly with respect to primary mission areas, and provides fairly detailed calculations for separate program areas. Variations on this approach are numerous; some are minor and some are major. The remainder of this appendix describes three such variations. They tend to reflect different economic assumptions, as in the fixed- and variable-cost approach prepared but not implemented in Wisconsin and the marginal-cost approach employed in Indiana, or a desire to simplify the formula, as in the approach developed in Mississippi.

A Fixed- and Variable-Cost Approach

Process. Proposed for use in Wisconsin, this fixed- and variable-cost approach to calculating instructional expenses (University of Wisconsin System 1980) was initiated by an ad hoc group of administrators in the university system. The initial design was discussed in detail with each of the institutions, with suggestions for implementation incorporated into the next stage of development. All data needed for the study were available at the system level: student and curricular data from the central data base, cost data from the budget file, and faculty data from the October 1 payroll file.

Determining the Level of Fixed Costs. The fixed-cost component of the instructional budget was based on the assumption that, at a minimum, one section of each course must be offered to provide access to the current curricular and program arrays at the institutions. The following outlines the step-by-step approach used in calculating fixed-cost levels for instruction by institution (University of Wisconsin System 1980, pp. B-1 – B-3):

I. Identify Fixed-Cost Sections

   A. Assumptions.

      1. The current mission, program array, and course offerings for each institution or campus
      2. A single (set of) section(s) for each course offered in a given term

   B. Using the assumptions above, calculate the number of fixed and variable course sections by institution or campus, discipline, course level, and type of instruction.*

II. Determine Faculty Work-Load Measure

   A. Assume current faculty work load by campus, discipline, level, and type of instruction.

   B. Calculate current faculty work load in terms of number of sections per FTE by campus, discipline, level, and type of instruction.

   C. Using the above work-load measure, calculate the number of FTE faculty required to teach the fixed-cost sections identified in I.B. above.

III. Determine the Fixed-Cost Level of Instructional Salary Dollars

   A. Assume current faculty, academic administration, and instructional support personnel and current salary levels.

   B. Calculate the fixed-cost faculty salary dollars by multiplying the number of FTE faculty required to teach fixed-cost sections × the percent effort devoted by each faculty assigned to the sections × the average faculty salary, by campus, discipline, and level.

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*In addition to the single-section assumption, special sections may be identified as additional fixed-cost sections if they are required to meet the unique needs of special student clienteles, such as extended-day or part-time students.

C. Calculate the fixed-cost academic-administration/instructional-support salary dollars by prorating total academic-administration/instructional-support salary dollars between fixed and variable costs, based on the ratio of the number of FTE faculty required to teach the fixed-cost sections (II.C. above) to total FTE faculty for the campus.

IV. Calculate the Fixed-Cost Level of Academic Support Staff, Supplies and Expense, and Capital Dollars

A. Assume current level and salaries of classified staff in support of instruction and current dollar levels for instructional supplies and expense, and capital.

B. Sum, by campus, total academic classified salary, supplies and expense, and capital dollars, and assign a portion of these dollars to fixed costs based upon the ratio of fixed-cost faculty FTE levels to total faculty FTE for the campus.

V. Determine Total Fixed Costs and Percentage of Fixed Costs for Instruction

A. Sum the fixed-cost level of faculty and academic administration salary dollars, classified staff, supplies and expense, and capital dollars, by discipline, by level, and by institution or campus.

B. Divide total fixed-cost dollars by total instructional budget to compute the percentage of fixed costs for instruction by institution or campus (see table 4 for percentages of instructional fixed costs by institution).

C. Sum total fixed-cost instructional dollars for each institution and divide by the total system instructional budget to yield the percentage of system instructional dollars that must be considered a fixed cost if existing institutional programs are to be maintained.

TABLE 4

University of Wisconsin Systems
Fixed-Cost Analysis
Instruction
Base Year—1978-79

	% of Fixed Costs—Single Sections	% of Fixed Costs—Including Extended Timetable Sections
UW System	49.7%	51.7%
Doctoral Cluster	48.2	50.2
Madison	46.7	47.4
Milwaukee	51.4	56.5
University Cluster	50.0	51.7
Eau Claire	47.3	48.8
Green Bay	67.7	69.7
La Crosse	40.6	41.1
Oshkosh	49.3	51.7
Parkside	63.3	69.8
Platteville	53.5	54.6
River Falls	59.6	60.0
Stevens Point	45.2	46.0
Stout	42.6	42.9
Superior	69.8	71.5
Whitewater	44.0	47.1
Center System	65.6	68.4
Baraboo/Sauk County	63.7	64.6
Barron County	64.5	67.1
Fond du Lac	68.1	73.3
Fox Valley	67.8	67.8
Manitowoc County	70.9	73.6
Marathon County	63.3	65.0
Marinette County	79.9	79.9
Marshfield/Wood County	75.3	76.8
Medford	87.9	92.6
Richland	77.0	78.0
Rock County	65.8	69.2
Sheboygan County	69.6	72.0
Washington County	70.0	74.4
Waukesha County	51.6	56.2

SOURCE: University of Wisconsin System, "Fixed/Variable Cost Analysis in the University of Wisconsin System." Discussion Paper. Madison, Wisconsin, 11 April 1980.

A Marginal-Cost Approach

Objectives. In adopting and implementing its current enrollment-change formula for calculating instructional expense, the Indiana Commission on Higher Education (1983, pp. 2-7) sought to address the following objectives:

1. New expenditures in a program should relate to old expenditures in that program.
2. There should be a symmetry established that assumes additional expenditures when enrollments increase, and assumes lowered expenditures when enrollments decrease.
3. The state should be sensitive to the scale of enrollment change that is occurring; that is, small enrollment changes should receive relatively less funding attention, whereas large changes should receive greater attention.
4. To the maximum extent possible, a comparable—and hopefully equivalent procedure—should be used for each institution and campus.
5. Calculations should be based on demonstrable data, where historical enrollments are needed, and on best-estimates worked out cooperatively by the Commission and the institution, where future enrollment estimates are needed.
6. A responsible funding plan should look backward to correct assumptions made earlier, if necessary, and to the future in order to accommodate anticipated growth or decline in enrollments.
7. Enrollment change should, if possible, take into account changes in the mix of enrollments among programs as well as overall campuswide changes in gross-enrollment levels.
8. The enrollment-change portion of the Commission's budget should deal with enrollment change only, and should not attempt to accomplish other objectives such as equity among campuses, etc.
9. In order to make informed decisions about start-up of new programs as well as possible quality improvements in ongoing programs, enrollment change funding calculations should be made at the program level rather than the campus level.

Current Procedure. The current marginal-costing procedure employed by the Indiana Commission is best explained mathematically:

$$MC_i = E_i \times AC_i \times MCF_i$$

where i = the *ith* program area
MC_i = marginal cost, expressed in dollars
AC_i = the current average cost for the *ith* program, expressed in dollars
MCF_i = a marginal-cost factor, which depends upon the size of enrollment change for the *ith* program
E_i = the change in enrollment in the *ith* program.

The marginal-cost factors incorporated into the calculation are presented in table 5.

TABLE 5

Marginal-Cost Factors

% Change in Enrollment (+ or −)	MCF
.1- 1.0%	22.8%
1.1- 2.0	28.1
2.1- 3.0	32.7
3.1- 4.0	35.7
4.1- 5.0	38.2
5.1- 6.0	39.9
6.1- 7.0	41.4
7.1- 8.0	42.7
8.1- 9.0	43.9
9.1-10.0	44.8
10.1-11.0	45.8
11.1-12.0	46.6
12.1-13.0	47.4
13.1-14.0	47.9
14.1-15.0	49.5
15.1-20.0	49.7
20.1-25.0	51.2
>25	52.4

For purposes of budget computations, the above calculation is computed for each program area at a campus, then summed across all available program areas.

Enrollment change funding (in state dollars) is simply computed as:

$$NSF = MC - MR$$

where NSF = new state funding
MC = the sum of all marginal costs for individual program areas at a campus
MR = the new (marginal) fees associated with the change in enrollments.

Some special observations may be helpful:

1. Changes in enrollments (ΔE_i) may be negative, in which case marginal costs may be negative (MC_i).
2. The marginal-cost factor currently varies from 22% to approximately 50%, depending upon the magnitude of enrollment change occurring.
3. It is possible, and occasionally it actually happens, that marginal revenues (MR) exceed marginal cost (MC). In such a case, new state funds could, for example, be negative, even when enrollments are increasing.
4. Enrollment shifts in students from one program area to other program areas may have a substantial impact on state funding even if gross campuswide enrollments do not change. For example, students shifting to higher-cost programs may cause appropriations to increase
4. even if total enrollments do not, and vice versa.

Perceived Problems with the Current Strategy. The following is an attempt to present the varous problems, difficulties, and complaints that have been articulated by institutions and others about the current marginal-cost strategy:

1. It is difficult to predict enrollments in the base year accurately, and this influences calculations for the projection years as well.
2. It is difficult to understand and explain the current procedure to the General Assembly.
3. The General Assembly, as well as some institutions, appears to be searching for a revenue-equity model, not a cost-equity model.

4. Even assuming the validity of the marginal-cost calculation procedure, the marginal-cost factors used by the Commission are too low and should be increased to reflect actual expenditure increases experienced by institutions.
5. Because of the nature of the marginal-cost formula, a campus or institution often must explain or rationalize counterintuitive results, both to the General Assembly and to their on-campus constituents.
6. Despite the Commission's desire for symmetry in calculating marginal costs for the growth or contraction of individual programs, the reality of the computation is that the same change in FTE enrollments on the way up yields a larger marginal-cost factor than on the way down.
7. Because of the current formulation of marginal-cost methodology, a large enrollment change in one year does not yield the same result as a corresponding series of smaller changes occurring over several years.
8. The level of detail selected by the Commission appears inappropriate for many campus-level management decisions regarding enrollment change.
9. The current procedure makes the same assumptions about economies of scale for each campus, yet these assumptions do not reflect substantially different capacities, funding levels, and management styles at the various campuses and institutions.
10. When enrollments change, the full effects of that change (vis-a-vis funding, for example) are assumed to occur in one year, yet campus reactions are likely to occur more slowly, perhaps extending over several years.
11. By offsetting marginal costs with marginal revenues, the Commission has made it difficult, if not impossible, for a campus to *improve* its relative position through enrollment change.
12. Average-cost amounts used in the marginal-cost procedure are primarily a result of historical management and demographic changes, and do not reflect the ideal or desired level of program funding.

A Percentage-of-Base Approach

Mississippi uses a percentage-of-base formula for developing annual appropriation requests for its eight senior universities. The formula employed by the Board of Trustees of State Institutions of Higher Learning for developing the FY 1980-81 requests consisted of four components, the last three being figured as percentages of the first (Gross 1982, pp. 37-38).

Instruction. Total student credit hours by level (lower division, upper division, and graduate) and by discipline (twenty-six areas) were multiplied by given rates per student credit hour for three types of institutions (comprehensive, urban, and regional without doctoral program). These calculated amounts represented the total instructional budget.

General Administration, Library, Student Services, and Physical Plant Operation and Maintenance. The budget was determined by a percentage of the total amount calculated for instruction—47.0 percent for urban and comprehensive institutions and 50.0 percent for regional universities.

Research. The research budget was calculated as a percentage of total instructional costs—6.0 percent for comprehensive and urban institutions and 2.0 percent for regional universities. The totals of the three components plus an inflationary allowance (9.5 percent) represented the total educational and general budget for each institution.

Income Deduction. A percentage of the total educational and general budget was deducted to arrive at the net appropriation request. The income deduction was 32.0 percent for comprehensive, 30.0 percent for urban, and 26.0 for regional universities.

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